AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

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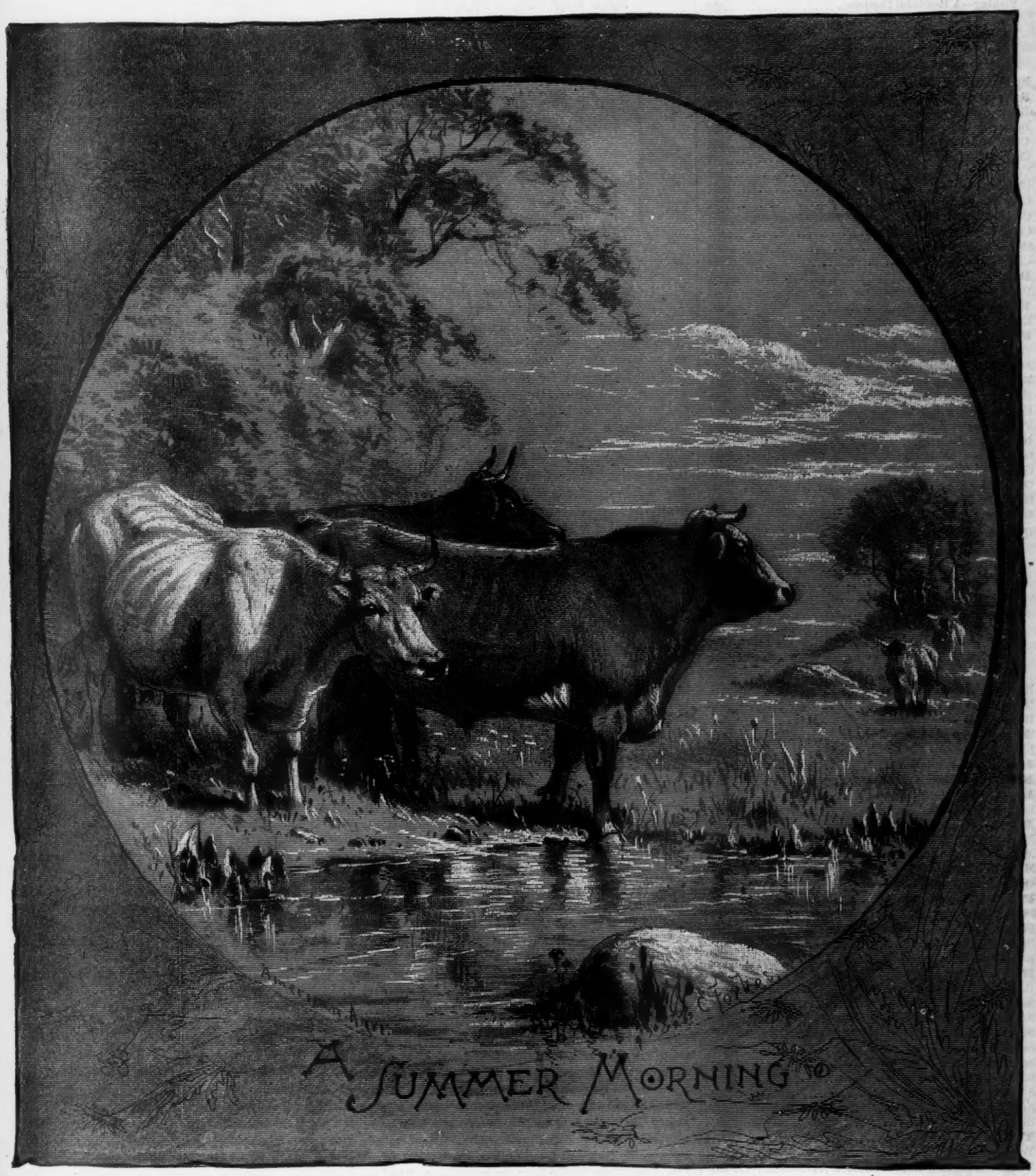

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June.

All green and fair the summer lies,
Just budded from the bud of spring,
With tender blue of wistful skies,
And winds which softly sing.

SUSAN COOLIDGE.

FARM AND GARDEN WORK FOR

JUNE.

This is the busiest of months for the farmer. Corn planting which is "planting" *par excellence*, over a large part of the country is not over before corn tillage presses, for the weeds grow very fast, and the grass grows, too, so that haying ought to begin. Millet and fodder corn must be sowed and in many sections Swedish turnips or rutabagas need to be in as early as the 25th, though in others, good crops may be depended upon when sowed a month later. Those who have orchard grass and clover in some fields will be glad that they may begin the hay harvest by cutting these long before timothy and red-top meadows are ready for the mowing machine. This saves a great deal of worry, and when the timothy is ripe it may be cut at once if proper calculations have been made. As to the age when timothy should be cut, it is well to bear in mind that for one's own use it can hardly be cut too green after the heads are well out, but for sale for city feeding it is preferred as old as it can be without the seed shelling off from the heads. It is used not so much as nutriment as for bulky food with oats or ground feed.

All readers turn immediately to page 268 for matters of special interest.

Live Stock Notes.

On the flush pastures of June the live stock should all be doing well. Work horses need substantial fare, and the less grass the better. Take care that the cows or sheep do not break through into rank clover, for they will eat enough in an hour sometimes to give them bloat or hoove, a malady often quickly fatal. Keep the pigs in the orchard if possible. They grow well on the clover, pick up the blasted fruit for the grubs it contains and stir the soil around the trees. Ewes with lambs need regular care, that they are not too much weakened by the draft upon them, and it is well to increase their grain as the lambs gain size. Ticks leave the old sheep for the lambs, so that it is well to dip the latter this month before the lambs are weaned. Market chickens may be pushed to advantage by frequent feeding, besides having a free run, if possible, while they are growing and before they are put up to fatten. After ducks have passed the delicate stage and have their feathers, they may be given frequent feeds of food to give them rapid growth and size. The earlier they are sold after they become marketable the greater will be the profit.

Orchard and Fruit Garden.

Much may be done in the way of "anticipated pruning," by going among newly planted trees and rubbing off all shoots that appear where branches are not wanted. By doing this now, the trouble of sawing off large branches some years later will be avoided. Grafts that were inserted this spring, and are beginning to grow, should be treated as if they were young trees and brought into proper shape by judicious pruning. If one bud on a graft takes the lead of all the others, stop it by pinching. In short, treat a graft as if it were a young tree planted in the soil, instead of being planted in another tree....If shoots appear upon grape-vines where they are not wanted, remove them. If an old vine has been severely pruned, numerous buds will start upon the old wood. These are generally not wanted and should be broken off as soon as they appear....This will be a lively month with insects. The curculio attacks the plums soon after the fruit is set. Jarring the trees and catching the fallen insects upon sheets spread upon the ground is the only effective remedy....Plant-lice often appear in great numbers at the ends of the branches of cherry, pear and other fruit trees. If these can be bent down and dipped into strong soap-suds, the insects may be killed. If out of reach, syringe them with kerosene emulsion. This is so generally useful as an insecticide on plants that we repeat it here: Stir kerosene with half as much milk until no oil is visible; then dilute with twelve times its bulk of water. This will kill almost all insects without injury to the plants....Watch for the currant-worm, and as soon as the leaves appear ragged apply white hellebore—a table spoonful to the pail of water—by means of a syringe. Repeat in about a week....Those who would raise fine specimens of fruit should begin to thin soon after the fruit is set....If strawberries are not already mulched, apply straw or other material to keep the fruit from being soiled....Grape-vines are grown in so many different ways that only general directions can be given. A vine planted last fall, or this spring, should bear but a single shoot; if a year older, two shoots may be borne; upon an old vine each shoot usually bears three clusters. If the stem beyond the last cluster is pinched off at two or three leaves the fruit will be larger and finer and the stem stronger.

Kitchen and Market Garden.

The main crops should be all sown, and returns for the table or the market be coming in. Beets, carrots, spinach, lettuce, peas and other early crops, should afford an abundant supply. Do not forget in the enjoyment of the first sowings to provide for a succession. Sweet corn, beans, peas, beets and a number of others may be sown to supply the table later in the season....This is the great month for weeds, and in destroying them the plants get much needed cultivation. There is often a dry spell this month. It is well to avoid watering as long as possible, but when it must be given, apply it copiously...Celery should be planted from the middle of this to the middle of next month. See directions elsewhere....Keep tomatoes tied up to their trellises, and cut away superfluous shoots....Sow cucumbers for pickles in well manured rows thickly enough to secure a final stand of a plant to each foot....Forward egg-plants by frequent hoeings....Onions are most profitable if bunched and sold when half grown or less....Spinach soon now runs to seed in warm weather. Try New Zealand spinach.

Flower Garden and Lawn.

Run the lawn-mower as often as once a week, or oftener if the rapid growth of grass requires it. In a dry time mow less frequently. It is a good plan to have the edges of beds in the lawn cut sloping, as this will allow them to be kept in order more easily....Annuals sown now, will make a fine display late in the season....Coleuses and similar "foliage plants," may now be planted in beds in the lawn....Cannas and tuberoses should now be planted...."Everlasting flowers," so called, will be needed at Christmas, and it will be well to pro-

vide for the demand by sowing seeds of helichrysums, rhodanthes, and others.... Weeds, whether in the lawn or on the border, must be kept in subjection. A sharp, stiff knife, that will cut the roots well below the surface, is a most useful implement for weeding in the garden.

Greenhouse and Window Plants.

These, as a rule, are set out of doors, but they should not be given over to neglect. If the pots are not set upon a pavement, provide a layer of coal ashes, that worms may not enter. Plants thus placed for the summer must have all needed water; they must not be overrun by insects, nor should their roots be burned by the beating of the sun against the pots. Indeed, plants that are set out require as much, if not rather more care, than if they had been left inside. Guard against injury by dogs.

Bee Notes for June.

Colonies should be strong in order to make the most of the harvest of the month. Any colony that has not a prolific queen should be supplied with one. Divide colonies that are preparing to swarm. Shade is very important at midday in midsummer. A very convenient method is by means of screens, or shutters, made of very light material, nailed to strips which will rest upon the top of the hive and leave an air space between that and the screen. The screen should be large enough to shade the hive in the hottest part of the day. To prevent their being blown off, place a stone upon each, sufficiently heavy to hold it in place.

Where robbing is suspected close the entrance so that the occupants of the hive can guard it. Two triangular pieces of inch boards, placed at the entrance to the hive allow the entrance to be contracted or widened by moving them nearer or farther apart.

This is the month of the harvest from white clover, though it may extend into next month. The Alsike clover is growing in favor with bee-keepers as a rival to white clover, and, as it is valuable for hay, farmers should be encouraged to sow it. The fruit trees and shrubs yield a great amount of honey, especially the raspberry and blackberry, both cultivated and wild forms, and the nectar afforded by these is highly esteemed. Where teasels are cultivated they yield an abundant supply to the bees, and the wild teasel, very common along the roadsides in some localities, is useful in this respect. A watch should always be kept for the destructive bee moth, or rather its larva. Wherever, in working among the bees, a web is seen, follow it up and remove the "worm," and kill it. This is the season when stocks may be increased by division or artificial swarming. Every bee-keeper should have one of the standard works upon apiculture, in which he will find artificial swarming fully described. It would require too much space in the paper to give the method here.

TEA AND COFFEE.—The average annual consumption per capita of coffee in Great Britain has decreased from 1¼ pound in 1858 to less than ¾ a pound in 1885. The importation of coffee to that country has increased from 60,000,000 pounds in 1858 to nearly 165,000,000 in 1885. Most of this is exported to European countries. Holland consumes 21 pounds per capita, Belgium and Denmark 14, and Norway 10. Russia is a tea-drinking land, and consumes only a quarter of a pound of coffee per capita. The tea import of the United States was 72,000,000 pounds last year, of which 6,000,000 was exported, leaving for consumption about a pound and a tenth per head. The import of coffee was 573,000,000 pounds, of which 33,000,000 were exported, leaving a consumption of a little less than 10 pounds per head. In Great Britain, the consumption of tea is 5 pounds per head. In Australia nearly 8, in New Zealand 7½. These figures show where the tea goes and who are its consumers. They are mainly in the English speaking world. The great coffee consumers are in the United States and on the continent of Europe.

The Transportation of Fish.

SETH GREEN.

Doubtless most readers of the *American Agriculturist* are familiar with the milk-can, but probably few of them know the important part it plays in fish culture. The cans are used for the transportation of fish, and in all my experience I have never found anything better or more convenient to handle. In shape the cans are like those used by milkmen in delivering milk, and not like the regular dairy can with straight sides; the trouble with these is that the water slops about so as to endanger the lives of young fry in case they should swim to the top of the water. With mature or full-grown fish they will answer the purpose very well. Our cans will hold about thirteen gallons, but about eleven gallons of water is all that is placed in the cans when fish are being transported, the balance of the room being left for aëration. The bottoms of the cans are made perfectly flat on the inside, as experience has shown us that in transporting young fry, if the bottoms are oval or crowning, the fry are very liable to settle about the edges on top of each other, and unless they are constantly watched and stirred the under ones will smother. With the flat bottom this danger is avoided in a great measure. Young fry are not usually shipped until the yolk sac is sufficiently absorbed so they can swim up somewhat.

Besides the can above described, an ordinary water pail and large tin dipper are necessary; also a piece of rubber tubing with about a five-eighths inch opening, to be used as a siphon in drawing off the water. When it is necessary to change it, the rubber hose is inserted in a tin tube about three inches in diameter, and in length within six or eight inches of the length of the can inside. The tube is perforated with fine pin holes for about six inches up from the bottom of the tube; this is to admit the water. The upper part of the tube is funnel-shaped, with the opening large enough to admit the siphon. A hook is soldered on the top of the tube which is caught over the rim of the can when it is inserted for use. I presume there are many of your readers who have never had occasion to use a siphon, the operation of which is very simple. When the rubber hose is placed in the tube as far as it will go, place the mouth over the end hanging outside the can and, by sucking the water into the hose until it is nearly full, then suddenly dropping it down so that the end outside is lower than the inside end of the hose, the water will run until the desired quantity is removed, when the tube is taken out and new water put in.

The object in not having the tube the full length of the can is to prevent all the water from being accidently drawn off and thus leaving the fish stranded; and it is not well to give the fish a full change of water, which is liable to prove very injurious, and has been the means of killing a good many fish while being transported. The idea is to keep the temperature of the water as nearly even as possible, and if it is made colder or warmer the change should be very gradual. Persons who have not had experience in transporting fish should always have a thermometer, so that the temperature can be tested. A safe plan to follow is to keep the water a few degrees colder than that in which the fish have been living. In warm weather this can be done by using ice, which, if placed directly in the cans, should be broken in small pieces.

Watch your fish carefully and do not let them suffer. If you cannot give them a change of water, you can refresh them and carry them long distances by re-aërating the water, either by drawing it off into a pail and then pouring it back into the can, or by dipping it from the can with a dipper and raising it high allow it to strike on the inverted cover of the can, upon which the fall will be broken, and from thence it will fall quite gently on the fish.

While the fish are in motion, either on the cars or in a wagon, there is but little danger of losing them because of the jostling about and consequent aëreation of the water; but when they are standing still careful watch must be kept over them constantly, and no parties having fish in charge should sleep, as in that case they would run an almost certain risk of losing them. Large fish show signs of distress by coming to the top of the water, and some kinds, as for instance, trout, will make frantic endeavors to jump out of the can. Young fry at first swim about uneasily, roll their eyes, turn on their sides, and unless relief is given them immediately they will be dead in a very few minutes.

The number of fish of the bass and perch families that can be carried safely in a can of the size mentioned above is from ten to thirty, according to the size, ranging from one-fourth of a pound to two pounds, and of the salmon and trout families from four to six thousand young fry can, too, be carried. The fry of shad and white fish are much smaller than the salmon and trout, and, therefore, eight to ten thousand can be taken in each can. About six or eight cans are all one person should attempt to take charge of at one trip, unless the circumstances are very favorable or he has had experience. The cultivation of fish should receive the attention of every farmer who has a stream or a pond, and they should learn the best means of transporting them.

A DAY OFF.

Engraved for the American Agriculturist after an old English Picture.

A Stable, Carriage-house and Tool-house.

One of the most convenient buildings upon the farm is a structure such as is here shown. It is intended to accommodate three horses, a carriage, wagon, etc., and the farm tools. The upper part (fig. 1) will hold a good deal of hay and may be fitted up for a granary. In front of the stable (fig. 2), is a wide feeding passage for preparing the food for the horses; the door is under the stairs, and there should be spouts from the meal-box and from the hay overhead. The tool-house is at the opposite end, and has a separate door. The roof

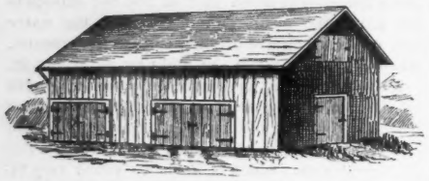


Fig. 1.—VIEW OF STABLE AND CARRIAGE-HOUSE.

should be provided with gutters and leaders to convey the water to a cistern, from which a pipe can be led to a pump in the feed passage. The whole of the floor should be made of cement concrete, which will afford no harbor for vermin and will keep the building free from these pests.

Sod Crops in Dakota.

B. G. NEWTON, DAKOTA.

One great advantage a settler in central Dakota has over almost any other part of the far West is the ability to grow a crop the first year. He is not confined to one or two kinds, but if he understands the ways and methods, can have a fine variety of feed to carry him through the winter. Commencing to break as soon as the frost is out of the ground —I know it's early, but necessary in this case, unless he can get some old ground to start with—breaking about four inches deep, harrow thoroughly—lengthwise the furrows, so as not to disturb the sod—he can put in wheat up to the fifteenth or twentieth of the month; then breaking more and harrowing, put in oats and barley. The first of May commence breaking for corn; break from four to six inches deep; after breaking two or three acres, plant it; some use a "sod" hand planter, and will plant from three to five acres a day; others "chop" it in, using an old axe to make a hole, dropping in the corn, and closing the hole by stepping on the spot; plant three or four kernels to the hill, about as many feet apart, putting it into the centre of the furrow slice; there is no use in planting, for ripe corn, after the fifteenth of May, and care should be taken to select such varieties as are

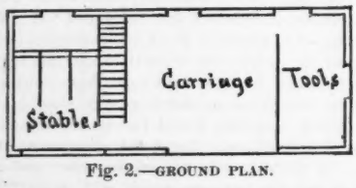


Fig. 2.—GROUND PLAN.

suited to the section. Seed can generally be had of some of the "old settlers" in the neighborhood, who have raised corn for two or three years.

Potatoes should be planted early in May, breaking three to four inches deep; drop the sets in the furrow next to the edge of sod just turned, and cover by next furrow, planting in every third furrow. Rutabagas yield heavily, and all that is necessary is, to sow the seed on the sod, just before a rain if possible; sow in May. The Golden Tankard Mangel Wurzel will yield almost as heavily on sod as on cultivated ground; deep breaking and harrowing will benefit the crop. Pumpkins, squashes, melons and cucumbers, also grow to perfection. Onions will produce fine bulbs; harrow before sowing. Carrots will also yield heavy crops, but some short variety, such as Short-horn or Ox-heart, should be chosen, as I don't know that any one ever found the lower end of a Long Orange carrot in this soil. Peas planted the same as potatoes will give you green peas in profusion. Beets, of the Blood Turnip and like varieties, can be grown. Beans yield as well or better than on cultivated ground; plant early in May. Cabbages are planted early in April by sowing the seed; when well up, thin to one plant in a place. Lettuce can be had from spring to fall; sow broadcast at different times. Radishes and Flat Turnips grow tender and crisp. Tomatoes will grow well; sow the seed in the hill, the same as for cabbages, early in May or last of April; they will stand a better chance of ripening than if grown in the house or hot-bed, and transplanted.

Those who have had the experience gained by two or three years' planting never put corn into old ground, unless they wish to grow an extra crop of some variety; but commence breaking and planting as before directed, and if the right seed has been chosen, the yield will be from twenty to forty bushels per acre; there is no expense, and weeds do not grow on breaking the first year, or but very few. Last, but not least, flax can be sown at any time from last of April to first of June; deep breaking and well harrowing will increase the crop very much, but fair crops—twelve to fifteen bushels per acre—have been grown without even harrowing in the seed. On June breaking sow millet or drop in corn, and cover by next furrow to cut for fodder; it costs but little for seed for either crop, and is better and cheaper than wild hay, unless this can be had without going far. In harrowing for any of these crops, it makes little difference what kind of a harrow is used; the great point is not to drag up the sods; all that is wanted is to make a fine seed bed on top; from my own experience I prefer an "Acme" to any other kind, as it can be set and run in any direction, without disturbing the sods in the least, and does the work perfectly.

Breeding on the Western Plains

A. B. ALLEN.

With the greatest admiration for the Short-horn, the Hereford, the Sussex and the Angus Aberdeen, my preference over all these, where cattle have to rustle for a living, particularly through a severe winter, the best and most profitable bull for breeding purposes is undoubtedly the Galloway. The reason for this is his superior hardiness.

The Scotch district where he originated, and has been long bred, is bounded by the Atlantic ocean, and its whole surface is constantly exposed to be swept by the cold, fierce winds which blow from it. In consequence of this, the Galloways are covered with a fine thick fur, overlaid by a second covering of long shaggy hair, resembling that of the buffalo. With such a protection, this enables them to withstand the blizzards of the West better than any other breed of cattle among us, and quite as well as the buffalo itself. Joined to this superior hardiness, the Galloway is of a very thrifty growth, fattens rapidly and economically, and makes a superior quality of beef; bringing a higher price than any other in the British market save the Kyloe (West Highlander) and the Aberdeen. No matter what the color of native cows bred to these bulls, or how long their horns may be, the calves which they produce from this cross are almost invariably of a black color, and grow up destitute of horns, like their sires. Of the great advantage of breeding polled steers, feeding and marketing them, I need not dwell. The superior economy, safety and pleasure of this is now so well demonstrated on the great western plains, that Galloway bulls are eagerly sought for, and wherever found are taken up at extra prices.

I think Western breeders, except in the mild climate of Texas, greatly err in putting their cows to bull too early in the season. This should not be previous to July, and it would still be better in the colder latitudes to defer it till August. Snow storms and rude winds prevail all through March, and occasionally in April, making the weather too rough and cold for young calves; moreover, the grass is then not sufficiently grown in many places to give them a good bite previously, and if so, the cows have not had time to recruit well either in this or the winter forage, perhaps, that may have been spared for them. Unless cows are in good condition at the time of giving birth to calves, their offspring will be weak and, if it survives, will grow slowly and never make a good, vigorous animal.

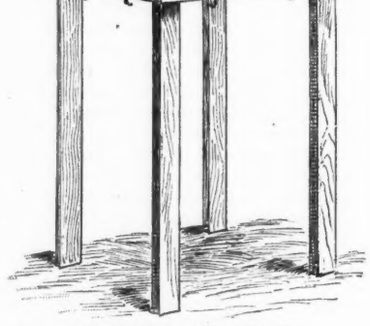
Heated Boxes.

The heating of the boxes of the reaper or mower frequently occasions vexatious delay, and occurs without any apparent cause. It is noticeable that a box once heated is more prone to heat again, and if the box holding the shaft to which the sickle-driver is attached is ever thoroughly heated, future trouble can be avoided only by the greatest care. If the box fits too closely around the shaft it is apt to heat. So, too, if it fit too loosely. The shaft must have enough play but no more. Too much play is more frequently the cause than too little play. As the machine comes from the manufactory the boxes are properly adjusted, but use wears them larger at the same time that the shafts are worn smaller. Each season part of the packing should be removed and the box tightened. If it then heats, the chances are that it has been made too tight, and some of the packing may be restored.

Lack of proper oiling will, of course, cause the boxes to heat. Very few are so careless as not to apply oil often enough, but the oil may be inferior. It is well to buy oil of only a reliable dealer, remembering that poor oil may be sold at a low price, but good oil cannot. The rule for oiling a mower or reaper should be, "Little and often." The boxes in which the sickle-driver works, should be oiled every few moments. If too much oil is applied, not only is the excess wasted, but dust is gathered, and this is a frequent cause of the boxes heating. If a box heats, the first thing to do is to remove all dirt, if there be any in it; and this is the first measure of prevention as well. It will also reduce the wearing of the parts. If the ground is quite dry, the dust will soon find its way into the box and make trouble, unless removed. Sometimes grass or straw will get wound around the shaft in the box. He who would never have a hot box must have a sharp eye and be of a careful mind.

Sack Holder.

A convenient sack holder saves considerable labor. In the one shown in our illustration the sack is brought up inside of the frame and is turned over

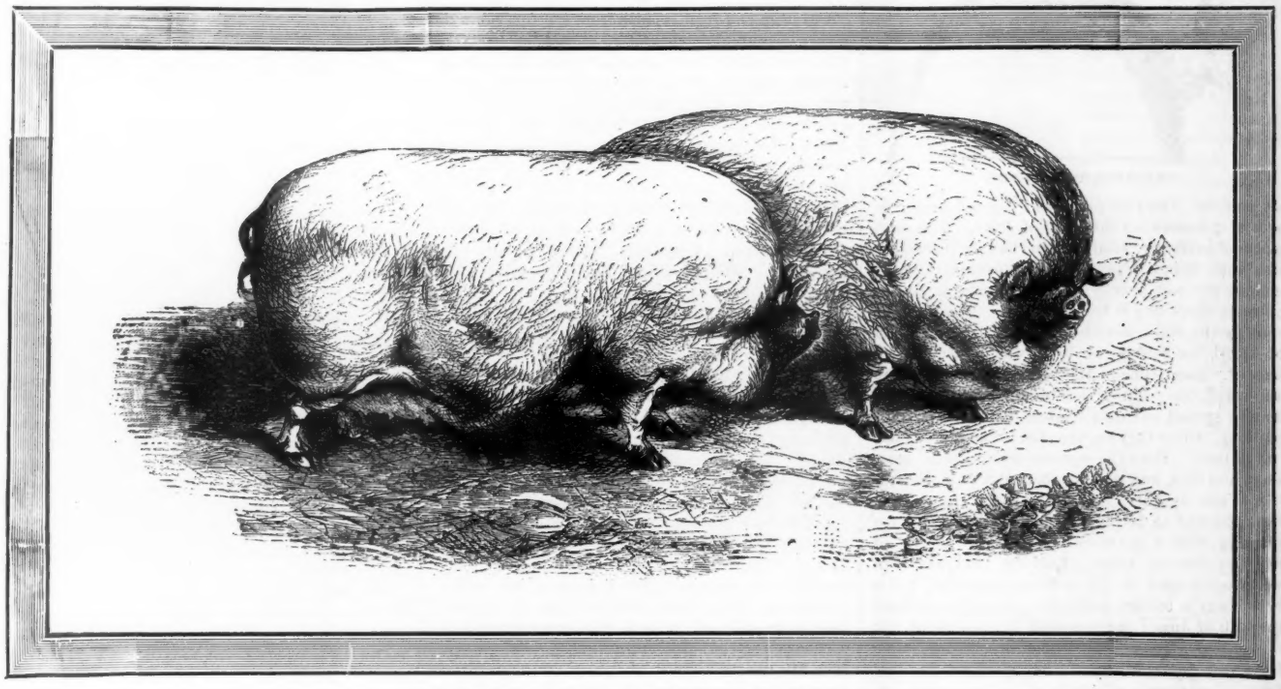


CONVENIENT SACK HOLDER.

and hooked on the underside of it. The hooks are put here because they are not in the way and the sack is not torn by the weight of the grain, as would be the case if the hooks were put on the top of the frame. The frame must be somewhat smaller than the sack. The sack can be filled to the top of the frame, as the part going over the frame will be enough to tie by. The material used is inch stuff. The length of the legs must be such that when the sack is put on the hooks it will rest on the floor.

Small Yorkshire Swine.

These pigs are called small, as has been before explained in the *American Agriculturist*, not because they are not of good size but because they are not large and coarse like the "Large Yorkshire." Pigs that can be made to weigh from 300 to 400 pounds at nine or even twelve months old are really not small, and those are no unusual weights among good feeders. The breed has been growing in importance in the United States for a number of years, and is championed by the "American Small Yorkshire Club," which publishes a register of pedigrees. The pigs are all white, have small bones and offal, have very short faces—in fact, the nose is almost eliminated. The body is both long and deep, the skin thin and well haired, the hams and shoulders of excellent shape and the flesh of superior quality. They are probably the most economical feeders of any breed, and are admirable for crossing upon Berkshires or breeds of coarser swine like Chester White and Poland Chinas. The progeny from these crosses is always white, exceedingly easy keepers and good feeders, getting a greater weight than the Yorkshires in less time, while they are fit for slaughter at any time after they weigh seventy-five pounds. For side pork and bacon sides these Berk-shire-York cross-breeds are supreme.



SMALL YORKSHIRE SWINE.

Engraved after Weir for the American Agriculturist.

Co-operation among Farmers.

The writer is secretary of a farmers' co-operative organization in the West, its object being to lessen the cost and labor of threshing grain and seeds, and sawing wood. It was started in January, 1876, and has since been in active operation. The plan is joint stock, capital unlimited and invested in a complete outfit for threshing wheat, rye and oats, hulling clover seed, and buzz-sawing. The stock is divided into thirteen equal shares, owned and operated by eleven share-holders, two holding two shares each with one vote for each share in controlling the business of the company, which is known as the Union Threshing & Sawing Company. The company is located in a comparatively wheat and clover section, and includes all of the farms in a radius of two and one-half by two miles. The officers are: A foreman, a secretary and treasurer in one, and one additional member to constitute a board of three directors, who are chosen from among the shareholders at annual meetings, at which all business for the past year is transacted. Settlements are made and dividends declared *pro rata*, the secretary charging each share-holder the price fixed at annual meetings for threshing, viz., wheat, 1¼ cts.; oats, 1¼ cts., and clover seed, 60 cts. per bushel. The directors assess each share an equal amount for all expenses (oil, repairs, fixtures, and operators' wages), which is credited to the share, and a balance is made, profits determined, and differences adjusted. Thus, if the annual profit be $158.08, one-thirteenth, or $12.16, will be credited to each share; then, as A's account shows him debtor to the company in the sum of $13.32 and F debtor in the sum of $10.36, A pays the treasurer $1.16 and the treasurer pays F $1.80, when it is seen that A and F have each drawn $12.16, with an actual circulation of only $1.80 in currency. (Or, thus: If 13,000 bushels of wheat be the season's run of the company, A has had 1,500 bushels threshed and F but 500 bushels, A must pay F for 500 bushels at 2¼ cts. per bushel, as F is entitled to 1,000 bushels, or the thirteenth of amount threshed)

The organization was effected at an informal meeting, where the subject was fully discussed. At a second meeting, articles of agreement were signed by every farmer in the proposed circle. The board of directors make assessments, have charge of machinery, and designate operators from among members of the company, when satisfactory ones can be had—if not, then they employ other help. Should different ones desire threshing done at the same time, the foreman determines by lot who shall be the first and second.

During its ten years of existence the Company has grown and threshed 75,125 bushels of wheat, 2,140 bushels of clover seed, and also considerable oats and rye. Work is only done for members. The profits, at the very low rates given above, have been $1,667.69, and at rates charged by machine men would exceed $2,250. Or, to have paid other parties for threshing 75,125 bushels of wheat would have taken about $3,000, and for 2,140 bushels of clover seed, more than $2,000, making a grand total of over $5,000. This amount would have gone into other hands than those who compose the Company. The total cost of machinery, repairs, oil, insurance, taxes and operators, other than share-holders, has been only $2,500, and the first outfit, which was second-hand, has been replaced by a new one, second to none in Northern Indiana. The last outfit has been used but two seasons, and will probably last twenty years more, with a daily average of 800 bushels of wheat or forty bushels of clover seed, and would sell to-day for $1,000 cash. Then, at an outlay of $1,500, the Company has done more than $5,000 worth of threshing, not including oats, rye, and sawing, all at a profit.

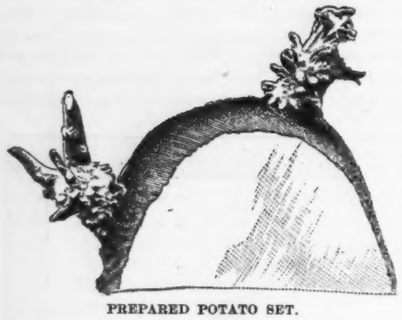
The above figures are taken from the books of the secretary and treasurer. They represent direct and substantial results of co-operation among farmers in one branch of labor only. Much can be said in favor of the benefit to the farmer in having his threshing done just when wanted, and by all interested parties saving both in quantity and quality of grain—boarding no threshers over-night and losing no time in procuring help, as members must respond to the steamer's whistle, by self or suitable help. The annual meeting brings together in a business and social way the entire neighborhood, where all accounts are settled and cashed, views exchanged, plans discussed, and every man's crops noted by members—all of which has the effect of producing friendly strife to excel in the number of bushels produced per acre. To such an extent has this rivalry been carried that the yield often reaches thirty and sometimes forty bushels of wheat per acre. One share-holder has had all of his wheat, oats and clover seed threshed for ten years, paying only ten dollars assessments, and drawing $152 in cash from the treasury, he of course doing the smallest amount of farming of any member of the company.

It may be thought difficult to manage such an organization for want of unanimity among neighbors, but in this company no disagreement has ever arisen worthy of mention, and wherever there is a man who can operate machinery advantageously, such co-operation is possible. All pursuits of life have co-operative organizations, and no valid reason exists why agriculturists may not combine for profit and pleasure. The daily average above mentioned should be construed to include only the grain and seed grown by the Company, as no threshing is done outside of the organization, and but little moving about—hence much greater durability of the machinery used in its operation.

Late Planted Potatoes.

The main obstacle to profitable potato raising is a drouth when the young tubers are setting. "For a series of years I have noticed," J. L. Gerrish, of N. H., writes us, "that those who plant either very early or very late do generally escape the drouth when it would be most disastrous, while those who plant at an intermediate period meet with as many failures as successes. For seed, especially, late planted potatoes are much to be preferred.

"Last year I planted an experimental plot as late as July 8th, and, although the tubers did not attain full size, a dozen of the best weighed over

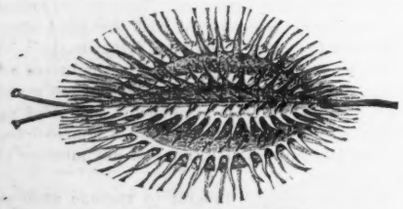


PREPARED POTATO SET.

six pounds. The year previous I planted nearly an acre of potatoes on the 26th of June. This crop matured perfectly, small tubers having formed in less than thirty days. It is the custom here to manure the sod heavily with barn manure late in autumn, spreading it from the cart. In spring, as soon as the snow has disappeared (about the 10th of April), the field is gone over with a birch brush harrow. Some time in May, when the sprouts are still small, the potatoes are brought from the cellar and spread out on a scaffold in a barn or outbuilding, where they are exposed to the air, but not to full light. Here the sprouts will harden, grow short and firm, and may be planted without breaking, as late as July. In Central New Hampshire, from the 20th to 25th of June is early enough for planting winter potatoes. Sometimes a crop of hay may even be taken off, if the land has been well top-dressed in the autumn previous, but a better way is to turn under the young grass about the 10th of June; at this season the sod heats and rots quickly. The accompanying illustration, taken from a photograph, shows a prepared set on July first. The sprouts should then be dark green, except at the extremities of the roots and the top of the sprouts." See also article in May last, p. 195.

Carrots and Carrot Seed.

A correspondent, thinking that he had a superior strain of carrot, was at the trouble to keep select roots and raise the seed from them. He now finds that his seeds mat together and that it is almost



MAGNIFIED CARROT SEED.

impossible to sow them either by a machine or by hand. The engraving shows a magnified carrot seed; it is not properly a seed, but a fruit, and if one is cut across, it will be seen to contain two seeds and it is always provided with short, sharp hairs, as seen in the engraving. It is exceedingly difficult to sow carrot seed in this condition, as they will mat or felt together, and clinging to one another by means of these hairs, will form masses. Hence growers of carrot seeds rid them of these hairs by rubbing them through sieves of varying degrees of fineness. Sometimes the seeds are placed in a stout bag with sharp sand, and the bag is kneaded and rubbed in order to remove the hairs, which, as well as the sand, are separated from the seeds by the use of the fanning mill. The carrot well illustrates the changes that cultivation has produced in our domesticated plants. The common wild carrot, found everywhere in our fields and roadsides as a troublesome weed, is the carrot in its original condition. If we compare the small, woody, worthless root of this with the large, tender, succulent root of the garden varieties, we can have some idea of the change wrought, not only in this, but many other plants. That this may be done again has been shown by M. Vilmorin, of France, and Prof. Buckman, of England, both of whom, starting with the weed, by repeated cultivation and selection, in a few years produced good garden forms of carrot. They did the same with the wild parsnip also.

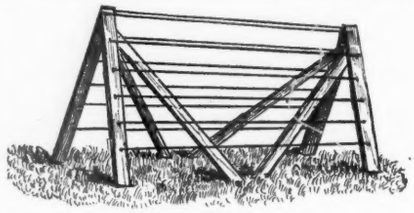
California Crop Prospects.

Our crop and fruit reports from California are of a very encouraging character. From ten to sixty-five per cent of these show a decided increase in acreage of grain, and a very heavy yield of wheat and barley is anticipated. An enormous crop of grapes and fruit generally is looked for. During 1885 California produced in raisins over 9,000,500 pounds, or nearly three times as much as in 1884. She also sent to market last year 1,500,000 pounds of prunes, 1,823,000 pounds of apples, 1,900,000 pounds of peaches, 1,139,000 pounds of plums, 650,000 pounds of apricots, 2,250,000 pounds of honey, 1,250,000 pounds of English walnuts, and 1,050,000 pounds of almonds.

Southern California is now attracting much attention, and is rapidly growing in wealth and population. A correspondent in Los Angeles County sends us the following: "We have had a succession of glorious rains last winter; over twelve inches has fallen this season, and this assures the largest grain and fruit crop that California has ever produced. We were cut off from all communication, our railroads washed out, and bridges carried away, but all damage was quickly repaired and made light of, on account of this excellent prospect for future returns. The vineyards flourish vigorously, and the wine and raisin crops must be large. Orange picking and shipping make it a busy time for us. Last week I filled a car with oranges for Denver, and have shipped several for Eastern markets. 'Florida's freeze has been California's chance.' The Denver firm paid one hundred and fifteen dollars for the car-load, delivered in bulk at the depot. This year I have two thousand boxes of oranges which grew on trees I planted, or transplanted from the nursery, just five years ago. They will bring me two thousand dollars, so you can judge what wonderful results can be accomplished in this climate and soil. A prominent fruit commission merchant at the East writes: 'The demand for every line of California fruit has steadily increased since their introduction, and the coming season will exceed all others in the quantity required to meet the demand. California dried fruits and nuts are now used in enormous quantities. The demand exceeds the supply. Your oranges, raisins, figs, peaches, plums, pears, apricots, grapes, cherries, etc., are driving the foreign products from our markets, and it will not be long before you have an open and clear field to yourselves.' This is an encouraging report for our fruit growers, and stimulates enterprise. Silk-growing is receiving some attention north of here. Olives and prunes are being extensively cultivated. Peanuts are raised in considerable quantities. Sweet potatoes and vegetables are mostly raised by Chinamen. When the latter are driven away by the wild persecution that now rages all over the State, we will be compelled to cultivate our own vegetables. I keep but one Chinaman. He is a faithful servant, and I shall be sorry to lose him, as I fear I may. This is a strange and wonderful country. To take it all in, one should spend twelve months in the State. Los Angeles is more than full of tourists. More hotels are needed, and more are being built. Its growth is remarkable."

Movable Grape Trellis.

A grape trellis possessing several good points is shown in the accompanying illustration. The wooden posts, which need not be fastened together, are of 3 x 4 stuff. If leant against each other their own weight and that of the vines will hold them in place. They are joined by smooth galvanized fencing wire. The posts must be braced inside as seen in the illustration. If it is desired to lay down the vines in the fall, the staples can be drawn and the wires pulled out, greatly simplyfying the work. The trellis being double, a row of vines may be planted on each side. Another point in its favor is that it allows the picker to get at the bunches on the under side of the vines easily and without dis-



MOVABLE GRAPE TRELLIS.

turbing the vines. The trellis is as cheap as any, is strong and durable, and does not require the digging of holes, while it may be taken out of the way when the vines are laid down, and stored under shelter in a small space until needed again.

Plants Grown for Their Perfumes.

We admire flowers quite as much for their fragrance as for their elegance of form and beauty of color. This is shown by the fact that almost every one on seeing a strange flower almost involuntarily brings it near to that organ through the aid of which we enjoy odors. There are great differences in the characters, so to speak, of the perfumes of flowers. The delicate refined odor of European violets properly belongs to so modest a flower, while the over-powering, almost intoxicating perfume of the Gold-banded lily (*Lilium auratum*) suggests heated ball-rooms, a crowd and display. There is one shrub which is not showy, but its tiny white flowers have such a choice odor that were it better known it would be often met with in the greenhouse and window garden. This shrub is generally known as *Olea fragrans*, the Fragrant Olive, but it is not an olive, and its proper botanical name is *Osmanthus fragrans*. It is a much-branched evergreen shrub, producing an abundance of tiny white flowers, scarcely half an inch across, and is almost constantly in bloom. The engravings give the habit of the plant and leaves and

OSMANTHUS FRAGRANS.

flowers of nearly the natural size. It is difficult to describe odors; perhaps that of this flower may be best described as "satisfying." Some would call it "exquisite," and others might exclaim "how *recherché*," without knowing exactly what it meant. It is said that the Chinese add these flowers to their choicest teas, in order to perfume and flavor them. If this is true, the Chinese show a discriminating taste in selecting perfumes.

A Kentucky Stock Barn.

Mr. T. T. Templin, its designer and builder, forwards us sketches and plans of the stock barn of Capt. J. C. Mays, Jacksonville, Ky. Mr. Templin claims that there are few barns in the State equal to this one in finish and general excellence, and we can well believe that it is well adapted to the farming of the Blue Grass State, which consists largely in raising of horses, cattle and mules.

The view, figure 1, shows the general style of the building, the yard for either mules or cattle, into which the stable doors in the basement open, the long shed, ten feet wide and supported by posts at the outer side, affording shelter from rain and grateful shade in summer. The basement plan, figure 2, is a single room, forty by sixty feet, with a solid cement floor, divided crosswise into three equal divisions or stables, each twenty by forty feet. The stables, *A* and *B*, are divided by double racks and feeding-troughs, running the full

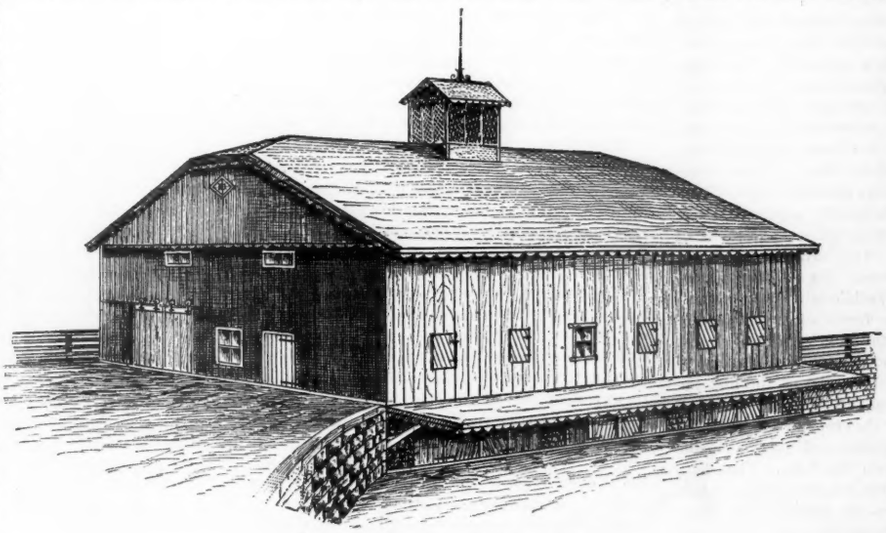


Fig. 1.—A KENTUCKY STOCK BARN.

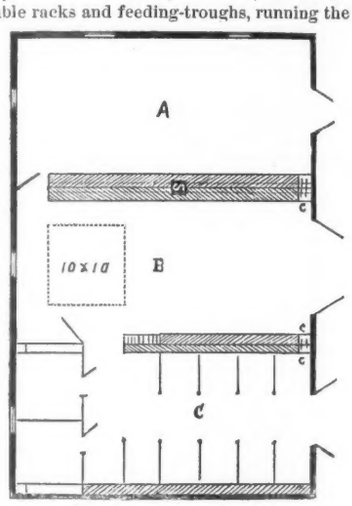


Fig. 2.—BASEMENT PLAN.

length on each side, except merely a door-way between the two stables at the rear, and small corn-bins, *cc*, fed by shutes from above, against the front wall. There is also a shute, *s*, from the third floor for bran, oats and chopped feed, and at the rear of the centre stable there is a trap, ten by ten feet, through which hay and bedding are thrown down. The third stable, *C*, is for cows, containing eleven stalls five feet wide, and two boxes ten by ten feet. In this stable there is also a corn or meal shute, *c*. The second floor, shown in figure 3, contains the horse stable, *E*, of five double stalls and five box stalls, ten feet square, the harness-room, *H*, a drive-way, *D*, running the entire length of the barn, and twelve feet wide, and outside the drive-way against the side of the building a corn crib, five feet wide, from which shutes go to the floor below, as stated. This stable is eight feet high. Each stall is furnished with circular manger and hay-rack, and a shute from above for grain or bran. The passage between the boxes and the stalls is five feet wide, and to this the floor on each side slopes three inches, to give both boxes and stalls good drainage. Opposite the harness-room, *H*, is the stair-way up and down.

On the fourth floor, as seen at 1, figure 4, are the grain bins, running the entire length of the building. They are planked solid to the height of seven feet, with lattice work for ventilation. Spouts lead from the bins to the drive-way on the second floor, from which sacks are filled. Care has to be taken to secure good ventilation throughout the entire building. The fronts of the box stalls on the second floor and the partitions between the cow and mule stables are also of lattice work. There is a large cistern on the upper side of the building fed by spouts from the roof, which supplies water to the stock, especially during the winter, troughs being provided in each stable for this purpose. The general relation of the rooms on the different floors is shown in the cross-section, figure 4, in which 1 is the grain room, reached by the stairs; 2 is the oat mow; 3, 3, the hay mows; 4, the corn crib; 5, the drive-way; 6, the double stalls; 7, the passage-way for horses; 8, the box stalls, and 9, the basement; the heavy cross-timbers above, 10, which extend ten feet outside the building and support the roof of corrugated iron, which forms the shed before mentioned.

Growing Celery.

Not many years ago celery was considered as a crop only to be grown in the gardens of the wealthy where the cost of cultivation was not regarded. Thanks to the market gardeners about New York the cultivation of celery has been greatly simplified; the old laborious method of planting it in trenches has been discarded, and now any one who can raise cabbages can grow celery. The dwarf varieties—of which there are several—are to be preferred to the tall-growing kinds, and as each of the principal seedsmen has his favorite tested sort it is safe to

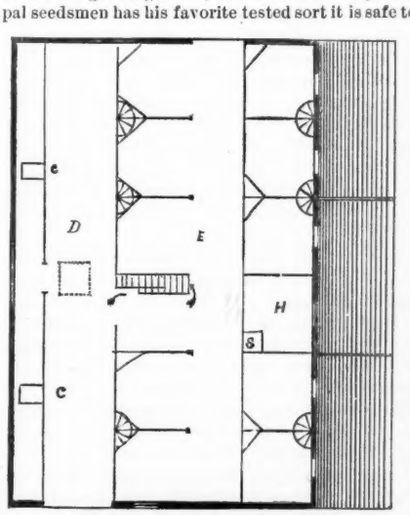


Fig. 3.—PLAN OF SECOND FLOOR.

follow his advice as to the variety. The important point is to secure the celery plants, and if one is not to cultivate largely, and can readily purchase the plants, it will be the cheapest to buy from those who grow them for sale. Of course, all cannot purchase plants, and the majority must grow them. Those who have not already sown the seeds must purchase plants, as the sowing should have been made two months ago. Market gardeners set their celery on land from which an early crop of cabbages, cauliflowers, onions, etc., has been taken; as the soil had been highly manured for these it remains rich enough for the celery. The soil being plowed and harrowed, it is marked off in rows three feet apart, and the plants set at every six inches in the row. After the plants are set, the soil should be pressed very firmly against the roots with the foot. On land not already rich the rows must be manured; mark out the rows four feet apart, and throw out furrows with the plow. Spread well decomposed manure in the furrows, knocking the lumps apart, and throw the soil back over the manure. Harrow and roll thoroughly, mark again, and set the plants at one foot apart in the rows. Nothing more is to be done to the cel-

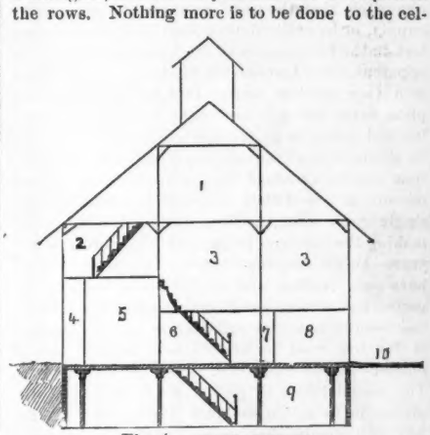


Fig. 4.—CROSS-SECTION.

ery except to cultivate it thoroughly and keep it clear of weeds until September, when it is prepared for taking up, as will be directed at the proper time.

Mowing the Roadsides.

It should be part of the road work everywhere to keep the weeds cut down which spring up along the sides of the highways; and this work should never be neglected. There is scarcely a neighborhood in which the highways do not mature enough weeds to seed half the adjoining fields. It would be to the interests of the owners of those fields to have the highways mown; but they fail to do this because the roads are public property, and they feel that every item of their care should be part of the public expense. Usually nearly all of the work could be done with a two-horse mower, the scythe being necessary only where there are projecting posts, sharp off-sets in the fence, etc. Thus done, the work would cost very little compared with the damage it would avoid. If the road overseers do not feel disposed to have this work done, fearing that it is outside their duties, it should be brought up before the annual town meeting and voted upon. If properly presented before the vote is taken, very few, if any, will vote against it. It may be well to suggest that not only those who have fields by the highways will be benefited, but every man who passes along the road.

Land Plaster—Its Use and Value as a Fertilizer.—II.

L. F. ABBOTT, MAINE.

Over a large portion of our country the want of more fertilizing material than the common resources of the farm supply is universal. To supply the three essential elements of plant food—phosphoric acid, potash and nitrogen—farmers have long been accustomed to resort to commercial manures in some form after the home supply of barn dressing has been exhausted. But to farm it economically with the fertilizers of trade requires skill and good judgment. Economic agriculture can hardly be said to be based on indiscriminate use of concentrated fertilizers. The obvious reason for this, of course, is their cost. To supplement the dressing from the farm, judiciously used commercial fertilizers have been found of great benefit.

We have long been taught that barn manure was the universal fertilizer, good for all crops, and hence its manufacture upon the farm was of the first importance. That conceded, all other sources of supply of plant food for the crops of the farm are simply adjuncts to the greater and more valuable supply manufactured upon the farm. That barn manure should always thus be esteemed may well be questioned, even when the rotation of cultivation looks to the ultimate grass crop, which, as a general rule, is considered the prime object on the farms of the older portions of the country. Experience has proven that the costlier element of nitrogen, in the combination of the three essentials for plant growth, may be used in much smaller quantities than the usual samples of barn manure supply, or be omitted altogether, and yet no undue lack in the food supply of the crops cultivated be apparent. For instance—it has been demonstrated in a very marked degree that, by supplying the phosphates in fine ground bone, and potash in unleached ashes, as good or even better results may be obtained on an impoverished soil at far less cost, than can be obtained by the application of barn manure at five dollars per cord in a rotation of a single grain crop, seeding to grass and clover, making the hay crop paramount for a period of five years—single dressing covering that time. This I have seen verified, and yet I believe, from an experience covering more than a quarter of a century, that results nearly as satisfactory can be attained at far less cost on certain soils by the use of plaster—sulphate of lime. I say on certain soils. The eccentricities of plaster, so to speak, as displayed in its action, are past finding out, but the fact still remains that, under certain conditions of soil and season, plaster possesses wonderful properties as a promoter of plant growth.

My first experience in the use of plaster was upon potatoes. Two fields were planted, differing widely in the characteristics of the soil. One was an oat stubble, the grain sowed upon the sward turned over early in the fall previous to the spring of sowing. It will be well to note particularly the character of this field. It was not what would be called an alluvial soil, and yet some of its characteristics were of that nature—moist, slightly tenacious, warm and light when worked, inclining to pack when lying in sod for a number of years. It had fair depth, and was underlaid with a hard pan of marly material and blue sand. The decaying sod, with the natural supply in the soil, gave an abundance of humus or vegetable matter. A liberal dressing of manure was broadcasted upon the stubble and turned under, turning up an inch of soil below the inverted sod. The usual routine of good cultivation and planting followed, with the exception of sprinkling of plaster in the rows (before the seed was dropped) to the amount of two hundred pounds to the acre.

To test the efficacy of the plaster—its use being then largely an experiment—at three points in the field two rows of potatoes were left without applying the plaster, and in three more double rows decomposed manure was quite liberally strewn, before the seed was dropped, without plaster; and on three more, plaster was applied in addition to the manure in the hill or row. The potatoes as a rule, in the manured rows, and the same in the rows where plaster was used in addition to manure, made their appearance above ground somewhat earlier than those on the portion where no manure was applied in the hill, or where neither manure nor plaster was applied. The usual phenomena so often remarked was very prominent in the color, and later on in the season in the size of the plants where the plaster was used; and at digging time the contrast was more marked. By referring to a memorandum I find that the yield by weight in the double rows, neither plastered nor manured in the hill, yielded about one-third less on the average, than either of the double rows on each side of them where plaster alone was used. The rows where plaster was applied with manure in the hill gave the largest yield of any, but the rows containing manure without plaster gave a yield varying but little from those planted on plaster without manure.

It was also found that in the manured rows without plaster, there were more rotten potatoes than on any other part of the field. Even the manured rows with plaster in the hill, suffered less in this respect than those rows where plaster was dropped with the seed upon the manure. At the close of the memoranda is the following note: "This single experiment seems to show that sulphate of lime (gypsum) has an affinity for certain elements in the soil or atmosphere, or both, by which the growing potato is supplied with food elements independently of any action the manure may exert, to wit: Two rows without plaster or manure in the hill gave six bushels of potatoes, or 360 pounds; two rows with plaster in the hill without manure in same, nine bushels, or 540 pounds; manure in hill without plaster, nine and one-eighth bushels, or 547½ pounds; manure and plaster, both, nine and one-half bushels, or 570 pounds. Season—a dry June with abundance of moisture following."

The following season this field was planted to corn in part, and the remainder sowed to wheat and seeded to grass and clover. In planting the corn, 200 pounds of plaster to the acre was used, dropped in the hill with the seed. On the wheat, 150 pounds per acre was sown, half at the time of sowing to wheat, and on the remainder when the plants were about three inches high—doing it on a damp day, an essential point, as a subsequent trial of sowing plaster on a dry and somewhat windy day proved. A dark-green and rank growth of the wheat plants was the result, and that about equal over the whole piece, with the following exception as noted: "Harrowing in the plaster with the grain seems to be preferable to sowing it upon the surface for the following reason: The drag in harrowing in the grain gives the plaster more even distribution, as is noted by the growth of the grain, light spots oftener occurring over the portion where the plaster was applied to the surface after the wheat had come up." The portions of the field planted to corn showed the same marked result as were apparent in the crop of potatoes the year before. Subsequent trials of plaster upon soils of the same or nearly the same character gave like results. But on soils of different characteristics, as a very light, dry, and gravelly one, also on heavy, wet soils, where clayey characteristics were predominant, the use of plaster was attended with different results.

Now for the other field alluded to. A field on another portion of the farm containing about three and one-half acres—a light gravelly soil, abounding in small pebbles, and underlaid with a subsoil of sand and gravel, compacted too hard to make much impression upon with the plow—was broken up in August and the next spring planted to corn and potatoes—manure being broadcasted and harrowed in, and the corn dressed in the hill with manure from the hog house. Plaster was used in a variety of ways upon both crops. The season proved to be rather a dry one, especially through July and August. Some 600 pounds of plaster was used upon the field without much evidence that any benefit was derived from it. The fact might as well be stated also, that both crops were light and unsatisfactory. A subsequent trial under different conditions showed interesting results.

The following season a part of this field was sown to buckwheat, which made a very heavy growth. This was turned under when fairly in blossom or just past. The season following plowing under this green growth, forty bushels of hard wood unleached ashes and 300 pounds of lime were broadcasted and harrowed in previous to planting to corn, dressed in the hill with hog manure and 200 pounds of plaster. The crop was very satisfactory, and the several trials made to test the action of the plaster showed to a marked degree that humus, or vegetable matter, in the soil was a condition necessary to obtain the best results from plaster.

An application of plaster to low, wet, cold soils is time and money thrown away, as I have several times demonstrated in practice. Without attempting to explain the action of plaster, I can confidently say that, on soils adapted to its use, it is one of the most economical fertilizers of which the farmer can avail himself to supplement his home supply of dressing. As has been shown, on most crops, in alluvial and fairly light soils, it supplies in some way the costly ingredient, ammonia, which all barn manure contains and most crops require for their full development. The marvellous effects sometimes reported from sowing plaster upon mossy, bound out pasture land, I have never realized, but on a clover lay, sown in spring, or upon the aftermath, after the first crop has been cut, 100 pounds of plaster seldom fails of adding many times its cost to the value of the crop. Repeated experience in that direction but confirms its value.

As I have said, many tests in the use of plaster under varied conditions and seasons, on the soils I have indicated, show that plaster is valuable out of all proportion to its cost. But if applied to dry, silicious plains, or to a hot, impoverished hillside, results will be disappointing. As a rule, I have found the effects of plaster the most obvious in warm, wet seasons. It may also be remarked that the varying of the seasons, in point of prevalence of a humid atmosphere, gives varying results in the effects of plaster upon crops, applied in different ways. It is often asserted that as good effects may be obtained from the use of plaster by applying it to the plants after they have appeared above the ground. It is true that highly beneficial results will be obtained by applying plaster to crops in that way, but if the season proves a dry one, when thus used, the benefit will be less. From repeated experiments to test this point, my conclusions are that the best results, as a rule, are obtained by applying the plaster with the seed.

Notwithstanding some recent statements to the contrary, based upon certain chemical tests and theoretical reasoning, I am of the opinion that practically, when plaster is used in horse stables and upon highly ammoniated manure, like decomposing hen and horse manures, the escaping of nitrogen in the form of ammonia is prevented. For this purpose alone, to use about the lean-to and horse stable, to deodorize all places where escaping ammonia is going on, plaster is almost invaluable when sprinkled upon the floors and over the heaps of dressing.

THE ACTION OF LAND PLASTER OR GYPSUM.

Mr. Andrew Kingsbury, Tolland Co., Conn., wishing to learn several facts in relation to the action of plaster as a fertilizer, addressed several queries to the Connecticut Agricultural Experimental Station. The replies, by the Vice Director, Dr. E. H. Jenkins, Mr. Kingsbury thinks will interest others, and he kindly sends them to us for publication. The replies, from which the questions may be inferred, are as follows:

First.—Plaster has no affinity for nitrogen. When moist, it will absorb and retain carbonate of ammonia. Plaster is sulphate of lime, and in moist condition is decomposed by carbonate of ammonia and carbonate of lime, and sulphate of ammonia are produced. Second.—Carbonate of ammonia is volatile: the strong ammoniacal odor of stables and urinals is due to it. Sulphate of ammonia is not volatile at any ordinary temperature. Third.—Plaster sprinkled on manure heaps and

in stables prevents loss of carbonate of ammonia. Fourth.—How great the loss of ammonia may be in stables, etc., it is not easy to say. An amount of ammonia that can be smelled is very small and would hardly be worth the saving, but no doubt the loss under some circumstances, more particularly in warm weather, is considerable. The advantage of using plaster in stables is largely in this: That the air which the animals breathe is kept sweeter and more wholesome.

Fifth.—Loam is a very excellent deodorizer and absorbent of ammonia. It would have to be used in much larger quantity than gypsum, and would therefore increase very considerably the weight of the manure to be handled.

Sixth.—Carbonate of lime in gypsum simply dilutes it. The fixation of ammonia is caused solely by the sulphate of lime; the less sulphate present the less the efficiency of the gypsum as a fixer of ammonia.

Seventh.—Gypsum does retard the rotting of manure.

Lucerne or Alfalfa.

CHAS. S. PLUMB, GENEVA, N. Y.

Lucerne or Alfalfa (*Medicago sativa*) is a very well know forage crop in the far West and Southwest in certain dry, arid regions. The plants belong to the *Leguminosæ* or Pea Family, in which are included the clovers, peas, beans, etc. Its stem is erect, succulent in its young growth, branching, smooth, and produces leaflets in sets of threes. The flowers are small, and pale-blue or purplish. The roots are tough and stout, especially the main or tap-root. The plant produces an abundance of foliage. In the North-east alfalfa is but little known. It has been grown to some extent in New York, having been first brought to this State by Chancellor Livingston of Columbia County, in 1800. This gentleman, after giving it trials in different soils, advised its culture. He found it hardy, and a lover of dry, warm soil, though it would succeed in clay if not frozen out.

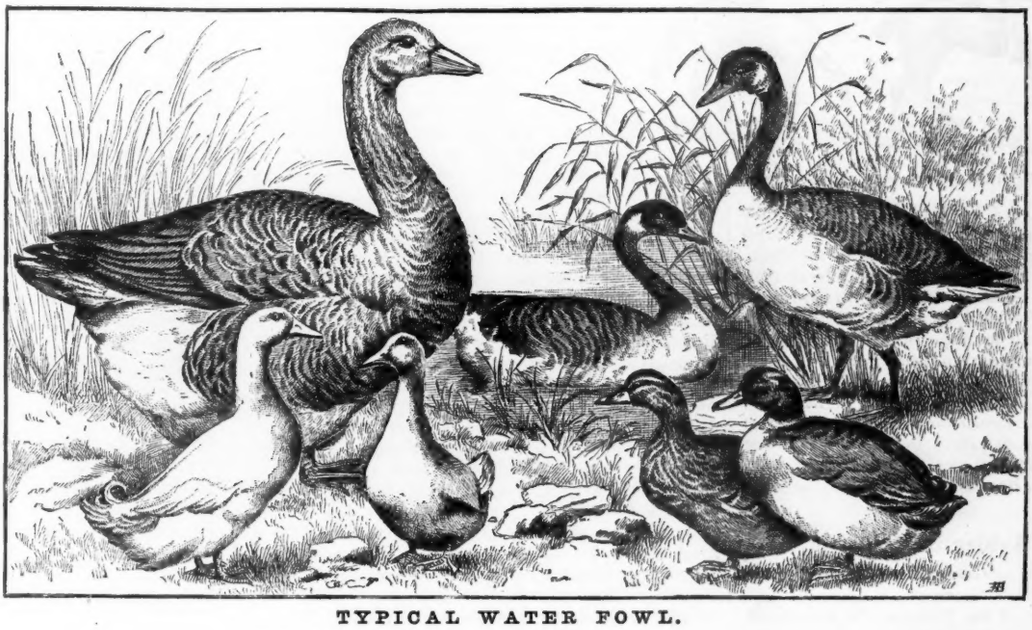
As a result of several season's trials I have found alfalfa to make an abundant, vigorous, healthy growth in Northern New York, where the soil is cold and the thermometer will drop to fifteen or more degrees below zero in winter. On April 20th our alfalfa plots begin a vigorous growth, and on July 2d the first cutting is usually made. One plot yielded at the rate of over ten tons per acre of green fodder; another seven and one-half tons per acre. On July 17th the plots were again cut, and yielded at the rate of over six tons per acre. On September 3d, another crop of over three tons per acre was harvested, and on October 2d, one plot was cut which yielded at the rate of over three tons per acre. These plots have made good growth for three successive years. The foliage is very succulent, and the stock of the farm relish it very much. The average height of the plants just before making the first cutting was two feet four inches, as near as could be ascertained, though some plants attained a height of two feet nine inches. The plots were not manured.

On July 10th I made a root-washing bed from a bed of alfalfa. The roots descended quite vertically into the soil and many of them were large and stocky. A foot below the surface one root measured three-eighths of an inch in diameter, and at two feet depth, nearly one-fourth of an inch. Fibrous roots were not at all abundant, though penetrating to a depth of four feet below the crown, where a bed of hard, tenacious clay was encountered. One large tap-root was traced three feet ten and one-half inches below the surface. Yet in sandy soil or sandy loam the roots of alfalfa penetrate to a greater depth than almost any other forage plant, and Mr. Gould mentions an instance in which the roots were traced to a depth of thirteen feet. It is this ability to penetrate to a great depth in search for food and moisture, which makes this plant of so much value in those regions where shallow-rooted plants can not be grown except by irrigation.

In conversing with farmers who have endeavored to grow alfalfa in Northern New York I have been told that they find it difficult to make a "catch." I have had no difficulty in this respect. Sowing about twenty pounds per acre in May, the seeds germinate and produce plants that do not attain a cutting size the first year, but after the first year the crop is a generous one, as four harvests the past season testify. I believe it will pay Northern farmers to give this plant a trial, for I think it will succeed in many places. Simply prepare the ground as for clover. In curing for hay, it will be well not to allow the plants to dry too much, else the leaves will rattle off. The crop should be cut before the plant is at all advanced in blooming, else the stems will become woody. If cut as soon as a good succulent growth is made a new crop will soon be under way. For soiling or for ensilage I consider lucerne an admirable plant. It does not spread at all, and if desired can be easily eradicated by cutting below the crown of the plant. In trying it, the farmer need not fear that it will remain on his land as a troublesome pest.

Geese and Ducks.

We have in the group of water fowls only practically useful varieties. Still there is great beauty of plumage and exquisite grace upon the water, which an hundred times over compensates for their awkwardness upon land. The great Toulouse goose, as heavy as a swan, its colors clear and bright, its feathers soft and abundant, its down delicate and also very abundant, and its flesh well disposed upon breast and thighs, so that the carver can find no fault even if he has a large company to serve, is the most profitable of all geese to raise, provided geese are obtained which are prolific breeders. So much pains has been taken to increase the size, that prolificacy has been neglected in some strains. The common wild goose, seen in the background, is of a different genus, and retains in domestication many of its wild habits, and on account of its swan-like grace and beautiful markings, is very ornamental upon ponds or lakes which are well enclosed in private grounds. They need semi-wild spots, or a wild island in the lakelet not likely to be flooded in a freshet, where they can breed undisturbed. The great advantage of the wild goose is the use of the ganders in flocks of common geese to breed what are termed "mongrels." These are, so to speak, "mules,"—hybrids which cannot breed, but which grow rapidly, and become very fat and heavy. They are the most delicious eating of all geese, and like capons among barn-door fowls bring a high price in the markets where they are known.



TYPICAL WATER FOWL.

Drawn and Engraved for the American Agriculturist.

The Pekin white ducks are our favorite, and better adapted for this country than the Aylesbury. They breed very true, are of the largest size and look almost like geese in the water or on the lawn. Their plumage is creamy white, of a very brilliant and rich tint. These ducks are extraordinarily prolific, laying often from very early spring late into the summer without any inclination to sit. Their eggs must ordinarily be hatched in incubators or under hens. The old standard Rouen ducks need no commendation. Their merits are well known. The heaviest of all breeds of ducks, reasonably prolific—often being autumn layers, growing rapidly, fattening easily, excellent upon the table, favorites in the market, handsome—the drakes having brilliant irridiscent heads and exquisitely beautiful plumage, with the bright blue mirror in the wings. They contrast strongly with their somber colored mates, which are never the less attractive from the beautiful markings of feathers. These are varieties which we can commend to the readers of the *American Agriculturist*.

Leading Horses.

The awkward scenes often exhibited in leading horses, both on country roads and city streets, generally evince the obstinate or lazy nature of the animals, though the fault is sometimes attributable to their bad management. Accidents occasionally occur from one or the other of these causes—the groom being unhorsed and sometimes seriously injured by the holding back of the horse he is attempting to lead. Probably careful training while young would materially remedy this defect, even in animals that are naturally lazy or obstinate.

Often, when a number of horses are being led along a road, one horse hangs back and allows himself to be dragged by the halter (fig. 1), while another trots up freely, ahead of the horse his leader rides (fig. 2). The difference in the dispositions of the two animals, so opposite in their nature, is by no means an indication of their respective abilities, for some of our fastest horses are naturally lazy and don't lead or go freely, requiring the whip or spur to keep them up to their work, while the free and high mettled are nowhere in the race. Yet the latter are generally preferred for pleasure and the former for profit. The horse that leads well, and runs well up to the bit, has the first element of a good and pleasant saddle-horse, while the obstinate or lazy animal is often a nuisance.

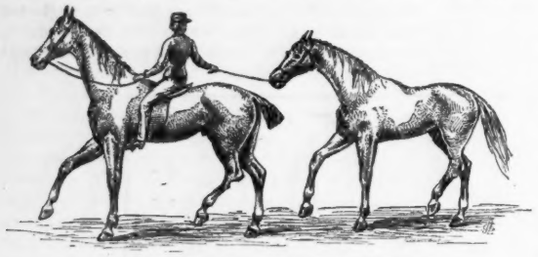


Fig. 1.—LEADING THE RIDING HORSE.

Stock Raising in Minnesota.

GEORGE M. RICHARDSON, CLAY CO., MINN.

Along the line of the Northern Pacific railroad, wheat has formerly been the almost exclusive crop raised by farmers in this section; yet, although the average yield for seven years has been sixteen and a half bushels per acre, stock raising promises better returns. Although we are supposed to suffer from a polar winter for six months, stock will winter in excellent condition and thrive, too. Shelter can be made cheaply, and as the ground remains frozen all winter there is no slopping around in the wet, and animals do not suffer from dampness. Our farm comprises four thousand acres, about half of which are under the plow, the remainder being used for hay and grazing.

Our stock barn holds thirty head of cattle, and is made by putting up posts and laying rails across,

Fig. 2.—LEADING THE SADDLE HORSE.

which are covered with about five feet of straw, and although the thermometer has ranged oftener below than above zero a bucket of water left in it does not freeze over night. Our stock cattle and dry cows get a little hay twice a day and the run of a big straw-stack, no grain or roots at all, and there is not one in the lot that is not in a thriving condition. We feed calves of the previous summer about one quart of oats in the evening, with plenty of good, sweet hay. This keeps them growing and thrifty. Having nothing to do for our horses from November until April, their winter rations are good hay and two quarts of oats per day, and on all days, when the temperature is above zero (that is mild here), they also have the run of a large straw-stack, from one hundred acres of land, between and with from five and six hundred tons in it.

Hogs want a warm place to sleep in, but they will stay out of doors when cattle find it too cold. We feed our hogs wet feed until the troughs freeze too much. After that we give dry feed and water them in low troughs, pumping as they drink. This may not be the best way, but we have no warm place to feed in and it answers very well. Our brood sows get two quarts of ground oats and shorts, half and half, a day, and yet are too fat. The store hogs get the same, and they are as fat as we care to have them. They have the run of a two-acre lot, where all the manure and litter from the barn is dumped, and they may get some food out of that, but it cannot be much. The breed is Berkshire, with about a quarter cross of Poland China. I sold seven last fall that had been fed on oats and wheat screenings ground together, and were never really fattened or forced. When twelve months old, their average weight was three hundred and twenty-six pounds, and they were sold at four and a half cents per pound, live weight. Corn is never fed; we can't raise it profitably and never use it, but when we can raise 16,000 bushels of oats upon three hundred acres of land, we think we have a pretty cheap feed, and we think those hogs paid a good profit. Any one who has tasted a roast of oat-fed pork, will not care for corn-fed again we are sure. We can raise colts about as easy as calves, and nice ones, too. Our stock comprises forty head of horses, fifteen colts, twenty-six milk cows, twenty-six head stock cattle, sixteen calves, about fifty hogs, and turkeys and chickens unlimited. We always have plenty of fresh eggs winter and summer.

It will thus be clearly perceived that this is a good country for stock as well as for wheat, and although we do not advise anybody to emigrate—as there is no land about here for sale—if any poor down-east farmer is dissatisfied with his lot, he need not hesitate to go northwest because there is no corn to fatten hogs.

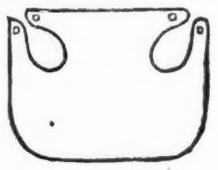
To Prevent Them from Fighting.

THOS. S. POWERS.

The ram must have some company during the summer, and a little bunch of calves or hogs will answer all purposes, if he is kept out of sight or hearing of other sheep. Or he may be placed with a few refuse wethers which it is desired to fatten and sell. In whatever company he is kept, it is best to have him not very distant from the house, for there is no other domestic animal so restless and liable to escape, especially as autumn approaches. And generally the more valuable a ram is, the more restless and pugnacious he is.

If two or more rams are kept together, they are liable to fight first, in the spring when freshly shorn, second, toward autumn. When freshly shorn they sometimes fail to recognize each other, but toward autumn they become quarrelsome. At this latter season it is important to keep other sheep at a distance. I have had two rams which had lived peaceably together all summer, become so excited by a flock of lambs that were driven by, that they fell foul of each other and the less vigorous one was well-nigh killed.

If they are housed at night, they may be put into a tolerably small apartment; by keeping thus closely together they do not have room to harm each other, and will soon become sufficiently acquainted so that they can be driven to pasture with but little fear of fighting. Should there be one or more that feel disposed to continue their combativeness, drive them to the barn, procure a piece of leather about seven inches square—an old boot top will answer—then with a sharp knife cut it so as to form a cap the upper part of which is placed on top of the head, between the horns; then tie the two points on each side together, around the horns. A little practice will enable one to fit a cap in this manner as nicely as a shoemaker will fit a boot to a foot. If necessary the cap can be



CAP FOR RAMS.

drawn tight to the nose by making holes, and tying from the sides under the jaw. This cap will entirely destroy a front view, and at the same time give a side view, enabling him to travel about where he chooses. This cap, when it is properly adjusted, will stop the fighting; at least it will so confound them that they cannot deliver effective battle.

Cheap and Handy Garden Roller.

A correspondent of the *American Agriculturist* at Havana, N. Y., sends drawings of a roller and

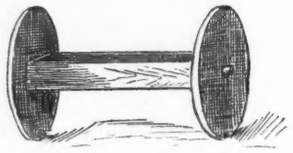


Fig. 1.—ENDS AND BOX.

writes: I enclose sketch of a garden roller which I have just completed, and if you think it will be of any interest to your many readers I hope you will use it. It is made almost entirely of wood, but possesses the advantages of an iron roller as

Fig. 2.—SIDE OF BOX.

far as relates to weight, while it can be made for one quarter the expense that an iron one would cost. A small roller, made entirely of wood is too light for general purposes, but by the plan given, one may be made of any desired weight, regulated by the size of the core or box containing cement. A box seven inches square and two feet long, seen in figure 1, surrounding the axle, one side of which is shown in figure 2, will, when filled with cement,

Fig. 3.—AXLE AND NUT.

make a roller when completed to weigh about 100 pounds. The cement used consists of water and lime, one part, and coarse sand two parts. It will be necessary to heat a large nut and shrink it on the three-quarter inch round shaft (see fig. 3),

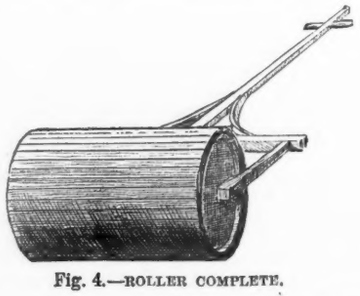


Fig. 4.—ROLLER COMPLETE.

and the cement when it hardens will be held firmly in place by it. The sketch of the completed roller, figure 4, is intended to represent a roller 18 inches in diameter and 28 inches long, faced with inch and three-quarter strips of wood secured by screws.

Fancy Bridle Bits.

The accompanying illustrations represent some of the many bits used for special purposes. Col. Battersby—whose volume on Bridle Bits the Publishers of the *American Agriculturist* are now issuing, suggests to the reader interested in the government

Fig. 1.—NEW STYLE OF MOUTHING BIT.

of the horse that, when there is such a variety of ideas as to how he should be controlled there must also be a variety of dispositions and tempers to govern. But be this as it may, the Colonel is evidently a friend to the horse, and an uncompromising foe to the awkwardness and ignorance that spoil him in the incipient efforts to break him in, thus rendering such contrivances necessary to undo what had been done or, perhaps, done the wrong way. Col. Battersby asserts that there is a national disposition of a cultivated growth to adopt in everything in life something new at the sacrifice of articles of necessity and greater utility adopted by our predecessors; that we are governed more by custom and fashion than by common sense, reason or necessity; and that this tendency is so general that notwithstanding that the horse is the most docile, tractable and obedient of all our domestic animals, the mania for some new method of handling him, and some new contrivance for subduing, restraining and using him as if he himself were a new contrivance or imported from some foreign land, is as

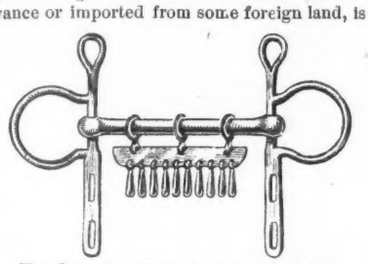


Fig. 2.—NEW STYLE OF MOUTHING BIT.

general among us as are fashions in dress and social restrictions in society, to which he says we have become slaves. However far the general practice may go to compare with the Colonel's sentiments on the subject, there is enough in his allusions to the variety of tempers and dispositions that the horse possesses to suggest to the horse fancier a more careful study of his horse's peculiar character before deciding upon the service he puts him to and the bit he employs to govern him.

In the earliest stages of our history, the horse was used more under the saddle than in any other way; and although it must have been employed with the chariot in the subsequent times of the Olympic games, so popular in the colosseum in the days of ancient Rome, yet its general field of usefulness was in vast armies of contending nations of those times, and from all the light on the subject that history has handed down to us, the horse of

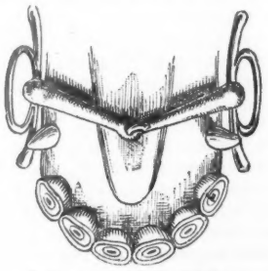


Fig. 3.—PLAIN SNAFFLE.

these periods was of the same nature and disposition as our own of the present time. It is more than likely that the variety of bits was not so extensive as it is now, for the probable reason that there was not such a thirst for invention, wealth and petty distinctions, and consequently not such a premium placed upon patented articles.

The quantity of iron and manner of the construction of many bits now being introduced and used, and the new style of mouthing bits represented in figures 1 and 2, show conclusively that such contrivances in the mouth are probably unnecessary and a detriment rather than a benefit to the horse and the object of the trainer.

Figure 3 represents the plain snaffle bit and shows its position in the mouth, and figure 4 represents the double snaffle, the actions of which are regulated by different contrivances.

Figure 5 is one of the bits invented for a spoiled mouth. A horse that requires such a bit was the victim of foul play and ignorance practiced in handling him when a colt. Figures 6 and 7 represent bits which are fortunately not frequently seen;

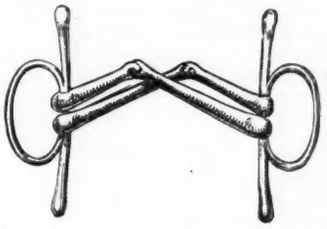


Fig. 4.—DOUBLE SNAFFLE, ON THE PANTOGRAPH PRINCIPLE.

they are likely to torture and irritate the horse, and are of questionable usefulness.

The Pelham, represented by figure 8, is a necessary bit for the purpose of racing in modern times, and is worthy the attention of turfmen who employ strange, young and ignorant boys to ride their horses, yet there is a great deal of money unnecessarily lost through its improper use.

Time to Market.

Whether the farmer should thresh his grain as soon as possible and market it at once, depends upon circumstances of which the most important is the character of his granaries. Our experience and observation, extending over many years, convince us that the better plan is to market at once, unless provided with good granaries. The market quotations show that usually there is a considerable advance in the price of oats and wheat from fall to the succeeding summer; but to offset this there is the non-use of the money, the shrinkage

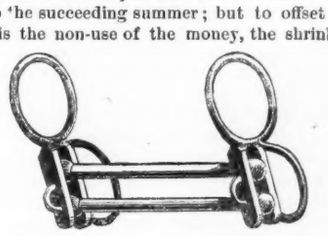


Fig. 5.—BIT FOR SPOILED MOUTH.

of the grain and its waste and damage by vermin, to which should be added the expense of insurance. Yet if the farmer has good granaries, he will find it profitable to hold his small grain year after year. If such a granary is lacking, the better plan is to market the grain as soon as threshed, or as soon after as it can be conveniently disposed of.

In-and-In Breeding.

A live stock breeder has prepared a tabulated statement of the pedigree of Moses, "the mightiest leader, law-giver, warrior and statesman of ancient or modern times," as an argument in favor of in-and-in breeding. It appears that Moses' ancestors were closely related by blood, and that it would be hard to find a more marked case of the commingling of the same blood for generations. This may not be a valid argument against the Mosaic law prohibiting the marriage of persons within certain limits of blood relationship. The experience of our times would be sufficient to prohibit the marriage of persons near akin. Yet there is no natural law that forbids in-and-in breeding; and the results of it among human beings must be attributed to

Fig. 6.—CREST STRAP BITS.

the mental conditions—resulting from fear of the very result produced—of the mother. This mental condition can not exist among the lower animals. Here reason favors in-and-in breeding, and experience commends it. Those who have made the greatest improvement in our domestic animals have been ultra advocates of in-and-in breeding, and have zealously practiced what they preached. The Collings Brothers, Bates, Bakewell, and many other names of prominent breeders who bred closely in-and-in will occur to the reader. Animals belonging to any "family" are more valued than animals belonging to none; and from their very nature families could be formed only by in-and-in breeding. It is equally true that only in the same way could any real improvement be made in animals. Improvement is made by accumulating slightly unusual excellencies in some points. These excellencies can be possessed by only a few animals and their

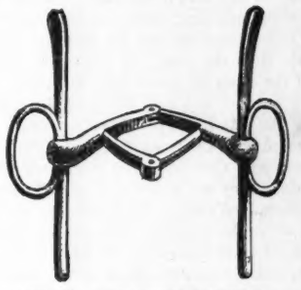


Fig. 7.—EXPANSION SNAFFLE.

progeny; and the more thoroughly close breeding is practiced the more rapid will be the improvement. Every departure from it must be by the use of some animal slightly inferior in certain points. But improvement is not only accumulating excellencies, but rendering them permanent; transmissible, not by chance, but by law; and this can be accomplished only by close breeding or by in-and-in breeding in the hands of a skillful breeder.

Nor does this include degeneracy in any particular. On the contrary, it excludes it, as certainly as like produces like. The only objection ever urged against in-and-in breeding is that it produces lessend vigor. No good reason why it should, can be assigned; and the facts contradict this. Animals belonging to families are not less vigorous and hardy than those outside of families. Highly bred

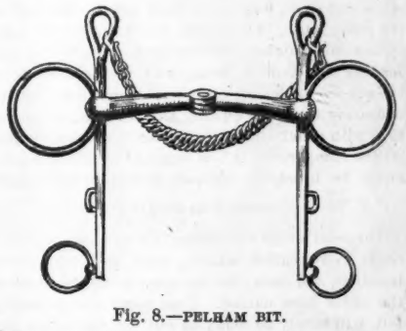


Fig. 8.—PELHAM BIT.

animals may be less hardy than their ancestors; but this is not because of any manner of commingling of blood, but because of the manner in which they are sheltered and fed. Our breeders are just

now learning that it is not wise to keep animals in a hot-house atmosphere and to force them with all the rich food they will consume.

The prejudice against in-and-in breeding is so strong and old that many who believe it to be silly, hesitate to attack it, as it is founded on Mosaic law. But Moses did not write for those engaged in improving farm animals; his law extended only to human beings; and while modern times have demonstrated that near blood relationship should be a bar to marriage in the human race, they have also shown that improvement among farm animals has been accomplished only by in-and-in breeding, as reasoning from our knowledge of transmission would convince us must be the case.

Unthreshed Oats for Horses.

Unthreshed oats are a better feed for horses than the grain alone, or the grain and straw both fed, but separately. The albuminoid ratio of the grain of oats is 1.61; of the straw of oats, 1.299. The food for horses at ordinary work should have an albuminoid ratio of 1.70. Hence, the grain of oats should be mixed with food having a lower albuminoid ratio. We might get a ration—having the proper ratio—by using corn with the oats. But it is well-known that for grain to be well digested it must be eaten with some sort of stover to form the necessary bulk in the stomach. For stover we might use timothy, which has an albuminoid ratio of 1.81, and would give the necessary bulk. But it is much better to have the grain and the stover eaten together. We may cut the hay, mix it and the grain together, and moisten the mixture; but we accomplish the same thing more economically by feeding unthreshed oats, for then the grain, all the chaff and a good part of the straw are masticated together. By thus feeding oats we not only improve the albuminoid ratio of the ration and provide the necessary forage masticated with the grain, but we save the expense of threshing. Oats to be fed in this way should be cut before they are quite ripe, cured thoroughly, and then moved away. They are just the feed for winter, when the horses require carbo-hydrates; and because of their manner of feeding are so well digested, and are so well suited to the wants of the horse that he will do a great deal better upon them than he would upon almost any other food.

Summer Soiling.

In mid-summer it is rare to find, in most sections, anything like fresh pasturage unless the summer be a wet one. If milch cows be allowed to fall off at this time they will not be able to recover full flow later in the season, even if fall pasturage is abundant. The best evidence that summer soiling will help to bridge over the dry months and guarantee a good supply of milk through the summer, is the fact that farmers who have tried soiling on a small scale are ready to repeat it on a larger one.

The principal objection to soiling is the extra labor it entails; but we believe that the economy in feed and in manure, where cattle are kept in the stalls and yard, will more than offset the cost of the extra labor. Of course, there should be some system in the time and method of gathering and feeding the soiling crop, and if for a dairy of twenty-five or thirty cows one man's time will be necessary to do the cutting and feeding, in connection with other attentions to the stock and stables. At the comparatively low wages at which such a one could be hired, the expense would be very slight.

CROPS FOR SOILING.

The best crops for soiling are rye, clover, or lucerne (also called alfalfa), oats and peas sown together, and corn; the succession will be in about the order here named. Rye, sown the preceding fall, will surely be ready to cut by the latter part of May, and if corn be sown early in the same month it will follow on after oats and grass, and if sown thereafter at intervals of a fortnight or so, there will be a supply until frost. Each subsequent sowing will require a slight increase of seed. The quantity of rye sown per acre should be about two bushels, and the soil should be rich. It is well to plow land, on which corn is to be sown, in the fall, then harrow it about the middle of April and prepare at once for sowing. If no manure is ready for the corn and commercial fertilizers are used, sow about 500 pounds to the acre, in the furrows. Furrows should be marked out two and a half or three feet apart, or if the double-row system is followed, sow two rows about six inches apart and then leave a space of two and a half feet or more, for cultivation, between the double rows. In one respect, at least, corn is more valuable than any other crop for soiling, as it can be fed in a green state from mid-summer until frost comes.

One advantage the crop of oats and peas is, that it is of quick growth and can be worked in between other crops and got out of the way, and it will leave the land ready for turnips or fodder corn. About three bushels of oats and two of peas to the acre, sown broadcast, are proper. This crop, raised for fodder purposes, is one not often enough grown by our farmers to have its real value appreciated.

FEEDING THE CROPS.

All green crops for soiling should be cut from twelve to twenty-four hours before feeding in order that they may be wilted. They have better effect on the cows both as regards quantity of milk and as being then less liable to bloat them. A bushel basketful twice a day is about the regular ration for a cow unless in full milk, when a little more may be given. Too much should not be given at the outset, however. Stock must get used to it gradually. Special care is always necessary at the time of change from dry to fresh feed, and this applies also to turning cattle upon fresh pastures after a winter and spring of dry feed. It is a good plan to cut some hay or straw with green rye to prevent bloat when first beginning the season of soiling. As stock becomes accustomed to the green feed, they may be given all they will eat up clean.

The Progress of Ensilage.

Within the last few years ensilage has passed the experimental stage, and has been adopted by so many farmers that it may be considered as an established method among many who devote themselves to dairying. The number of silos in the United States in 1880 is said to have been only six, while it is estimated that there are now about two thousand. In England there were in 1880 only four silos, while now Mr. M. J. Sutton, in his recent admirable work on "Permanent and Temporary Pastures," estimates that there are between eleven and twelve hundred. In England, the silo will come into competition with ordinary hay-making, allowing the farmer to secure his crops of grass and clover in very wet seasons more promptly and safely than he could as hay. In this country, on the other hand, ensilage will be mainly directed to the preservation of fodder corn, a crop of admitted value, but one which is on all hands regarded as very difficult to cure. In the Southern States, the silo will allow the farmer to preserve one of his most important crops, the Southern Cow-pea. This, which is regarded as most valuable as hay, is difficult to cure, as the large leaves are shaken off in the process, but packed in the silo, they yield most valuable cattle food, probably equal in value to ensilaged clover.

An important contribution to the literature of the silo is the report of "Experiments on Ensilage, conducted at Rothamsted, season 1884-5, by Sir J. B. Lawes, LL. D., F. R. S., and J. H. Gilbert, LL. D., F. R. S." Rothamsted as an experimental station has a world-wide reputation, and the names of Lawes and Gilbert attached to any statement impart perfect confidence in its accuracy. Possessing ample means, their experiments are conducted on a scale large enough to be regarded as practical, and having no other object than to arrive at the real facts of the case, their conclusions are accepted as final. It would be well if some of those who in this country think they are making "experiments," but are only guessing, could witness the accuracy and precision with which everything is weighed and measured at Rothamsted. The careful summing up of the experiments on ensilage will not be likely to please the enthusiastic advocates of that method. Their conclusions from their experiments are presented in twenty-two numbered paragraphs, the last four of which are as follows:

"19.—There can be no doubt that good food may be preserved in a favorable state for future use by being properly ensilaged. But the results obtained at Rothamsted do not favor the idea that produce which is itself not good food, can be made good food by being ensilaged.

"20.—Good ensilage, given in such amount as to supply the same quantity of dry substance as would be given in chaff or roots, is no doubt a very good food for fattening oxen.

"21.—Good ensilage, given in less proportion and in conjunction with roots, with the ordinary dry foods in addition, is no doubt a very good food for milking cows.

"22.—In conclusion, it is hoped that the details which have been given of the first year's experiments on ensilage at Rothamsted will afford some useful basis for the consideration of those who may be deliberating whether or not to adopt the system." Not very enthusiastic, but very safe.

Shocking Grain.

In the saving of grain there is no more important work than the shocking of it. If poorly shocked it is certain to be damaged. It seems necessary to leave it in the field to cure after being cut, and yet it so often suffers damage that we might well hope that shocking could be avoided altogether. The only remedy, however, is to shock well, which is rarely done. Very few know how to shock properly; and yet others shock poorly because of indolence. It is poor policy to have the shocking done by boys. The use of the self-binder must remove all excuse for the work being done by them. Surely, enough men can now be got to do this work. The self-binder is usually set to make rather large bundles, and they are always compact. Hence not more than twelve of these bundles should be put in a shock. If more are used, the grain will not cure properly; and more are not required to give the shock the needed stability. Two persons should always work together. Let each take two bundles and set the two pairs together. Then let each man set one bundle at the end nearest to him, alternating with the two already set. Two bundles at each side, alternating with those previously set, and the two cap sheaves, complete this model shock. Each bundle should be driven down solidly into the stubble. All should lean slightly towards a common center. Do not place the shock in a depression; but this is the only excuse for not placing them in a straight line—making the loading less inconvenient. For cap sheaves select long, slender bundles. Break them thoroughly, and be careful to place the tops towards the prevailing winds. After the ten bundles are set, gather their tops in your arms and draw them together. When the cap sheaf is placed, do not pat it down with a stroke in the middle, but by bringing an arm down across each end. Spread the cap sheaves to cover the entire shock. Any whisp of grain standing out can be tucked in.

If the bundles are small, as they must be in short grain bound by hand, as many as eighteen may well be put into the shock. In ordinary grain, fourteen hand-bound bundles may well be put into a shock—three being placed at each side, instead of two as directed above. Wheat, if well ripened, may be shocked when damp, but oats never. Oats dry out very slowly in the shock; and if shocked when damp, especially if that dampness proceeds from dew, will mould. Shocks properly set will not fall down unless in the force of a wind storm. If they should fall down in a hurricane, set them up again as soon as dry, placing the bundles in the same positions that they occupied before.

Valuable Dogs—St. Bernards.

The increasing interest manifested in the Bench Shows here in New York and elsewhere affords gratifying evidences that we are learning to appreciate the value and importance of good breeds of dogs, and are taking the necessary steps to secure such breeds. In our April number we presented an illustration of a thoroughbred mastiff. We now illustrate another breed, whose importance as a watch dog and a family dog have not been fully appreciated in this country. We allude to the noble St. Bernards, of which some splendid types have been exhibited in the Bench Show here. The breed, as is well known, is divided into two distinct classes, which are separately bred, though having a common origin—smooth-coated, and rough-coated. They are similar in size, form, color, markings, and characteristics. The smooth-coated ones are preferred by the monks of the famous hospice of St. Bernard, where they are still used to succor snow-bewildered travelers, because sleet and snow do not adhere to their coats and load them down. They are, however, very closely and heavily coated. This preference led the monks to part with the rough-coated ones, so that now rough-coated St. Bernards rarely occur among the dogs bred by them. They are, however, by many preferred on account of their leonine aspect, and greater apparent size. These dogs occasionally approach two hundred pounds in weight, possess great intelligence, are easily trained, form strong attachments, and are usually of a most kindly disposition, yet faithful and vigilant as guards. In dignity, imperturbability, vigilance, willingness to accept the responsibility of guard and protector to women and children, they are fully equal to the English mastiff, exhibiting the same dislike to tramps or suspicious persons, even when well-dressed. Their knowledge of character is often a matter of great surprise even to their owners, and is exhibited by an unwillingness to make friends with some while they form attachments to others. In this they are often very discriminating. As bred in this country, fine dogs are valued and often sell at one hundred to one hundred and fifty dollars as immature puppies, and at from three hundred to five hundred dollars when grown and proved to be of great excellence.

"Flora, No. 2," is the property of Mr. Wm. J. Ehrich, of Ehrich Bros., the New York merchants, who, on his frequent visits to Switzerland, has had the opportunity of securing some of the best animals of this famous breed. He has now, of both rough and smooth-coated breeding dogs, no less than seven, with fair prospects of a large natural increase of the stud before long. Flora arrived in this country in December last, was exhibited in February at the New York Fancier's show and awarded first prize for best smooth-coated St. Bernard bitch, and the second time she was exhibited, namely, at Newark, N. J., in March, she again received first prize. She was whelped July 18, 1884, in Burgdorf, near Bern, Switzerland, and comes of famous stock. In color, Flora is of a beautiful tawny and white, and otherwise perfectly marked. She has the dew-claws and the handsome spotted nose—points considered valuable in the breed. Mr. Ehrich was offered a large price for "Flora, No. 2," but he declined to part with her. He regards this beautiful animal as far superior to "Flora No. 1," which he was persuaded to part with recently on receiving an offer of a very large sum of money for her.

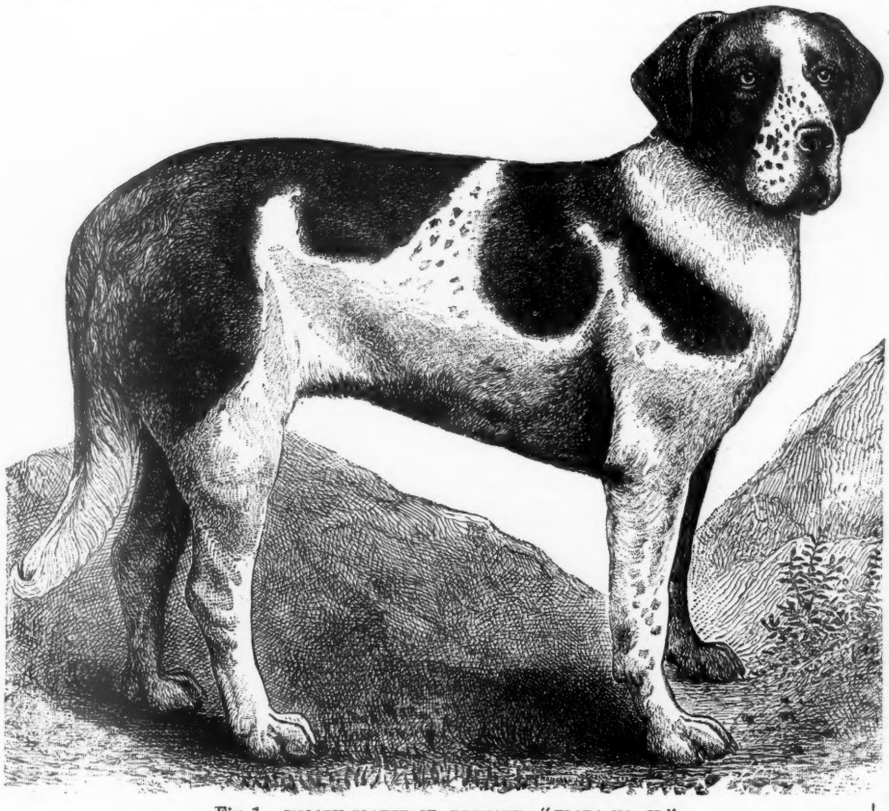


Fig. 1.—SMOOTH-COATED ST. BERNARD, "FLORA NO. II."
Drawn and Engraved for the American Agriculturist.

"Plinlimmon," 15050 of the "Kennel Club Studbook," was bred by Mr. T. Hall. His father was Pilgrim, and his mother Bessie II. Pilgrim's sire, Leo, was by the champion Hector; Bessie II's sire was a champion dog, Bayard, and her dam's sire, the champion Hector, above named. He comes, therefore, of blood from which we might expect great things. The editor of the "Stock Keeper," terms him "the grandest of his race." He is orange tawny, with the approved white markings, his face being admirably set off with black beneath the eyes, giving the head a dignified and benevolent expression. He was twice sold; the second time, after having won distinguished honors at the Warwick show, in 1884, his present owner, Mr. H. H. R. Chapman, of England, paying for him an almost fabulous price. A list of his winnings, all "firsts," cups, medals, and champion cups, makes a long paragraph, and in December last he won the "hundred guinea champion cup," at the show of the St. Bernard club.

In describing the two breeds of the St. Bernard, Stonehenge says the smooth dog is red and white, or brindled and white—a broad white collar of a peculiar shape distinguishing the true breed. The rough dog is most highly prized when of a deep tawny brindle, still with some white, but not so much as in the smooth kind. Both dogs are remarkably good tempered, and may be trusted with the care of women or children with great dependence. The absence of a dew-claw on the hind leg is considered a defect by some judges, and there is no doubt that many imported specimens of the breed have the highly esteemed double dew-claw.

Fig. 2.—ROUGH-COATED ST. BERNARD, "PLINLIMMON."
Re-engraved from the "London Stock-Keeper" for the American Agriculturist.

OUR BASKET.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or, a small club may be made a large one at reduced rates, thus: One having sent 5 subscribers and $6.00, may afterwards send 5 names more and $4.00, making 10 subscribers at $1.00 each; and so for any of the other club rates. Subscriptions can begin at any time, as every number of the paper is complete in itself.

Bound Copies of Volume 44 (for 1885), are now ready. They are uniformly bound, in cloth, gilt backs. Price at this office, $2. If sent by mail, $2.30. We can usually supply at same rate any of the previous volumes, *i. e.*, from volume 16 to 44 inclusive.

New Implement Wanted.—W. H. Ruffner, of the Virginia Normal School, writes us that an implement is needed for loosening a "tough old meadow sod." He says that the wheel harrow will not do the work. Some inventive member of the "Universal Yankee Nation" will please supply the desideratum.

Easter.—Several subscribers wish to know the origin of the word "Easter." It is derived from the name of the Teutonic goddess of spring, Ostera or Eostre, who was honored by festivals in April, about the time when Easter occurred. For the rules by which the occurrence of the day in future years may be determined, see page 164, April number *American Agriculturist*.

Baled Oat-Hay.—E. M. Gober, Bullitt Co., Ky. Oats cut and cured like grass make good hay. Not so good as golden millet, or Hungarian grass, however. We have never known of their being baled and sent to market, and doubt if it would pay. In some Southern cities, where baled "Pea-vine hay," and Johnson grass hay, also baled, sell, it might meet a paying market.

The New York Dairymen's Association has issued at this commendably early date the ninth report of the annual convention, containing the transactions and many valuable addresses upon dairy matters and kindred subjects. The officers for the current year are—President, Hon. Harris Lewis; Sec. and Treas., Hon. Josiah Shull, Ilion, N. Y., who will furnish copies of the report on application.

Night Soil for Quince Trees.—J. W. Bowdish, Providence Co., R. I. Good night soil, of home production, would no doubt benefit your quince trees, while poudrette (commercial night soil) might prove of little value, as it has less strength. Perhaps the best way to apply it would be in a trench dug around and near each tree, so as to reach the roots. In this trench it would be safe to use a liberal quantity of the night soil—mixing with it, however, three parts of common soil to one of the fertilizer.

Fish for a Pond.—Charles L. S. Tingley, Philadelphia, has a small pond four feet deep with pure spring water, and wants to know whether trout will thrive in it. Trout cannot live in water that gets much warmer than sixty degrees in summer, and are liable to smother if it freezes over in winter. In a clean pond black bass, perch, and other hardy kinds are best. If the bottom is muddy, bull heads and eels will succeed. Fish spawn can be procured of the different State Fish Commissioners.

Rysdyk's Hambletonian.—William Forrest desires a history of this famous horse. His sire was Abdallah, son of Mambrino, son of Imported Messenger. Hambletonian's dam was the "Charlie Hunt Mare," a daughter of Imported Bellfounder, a horse from Norfork, England, belonging to a family of horses called there the "Norfork Trotters." Hambletonian's grand dam, "One Eye," was by Bishop's Hambletonian, a son of Imported Messenger. This makes Rysdyk's Hambletonian a rare combination of Messenger blood. He sired thirteen hundred colts, and thirty-nine of them trotted in "2:30" and better. He lived to a good old age, and his sons got many fast trotters. The Hambletonian family now stands prominently at the head of the trotting families, a reputation honestly earned by public tests.

Reviving Old Pastures.—H. H. Lewis, Saratoga Co., N. Y., asks us the best way to revive or strengthen the grass in a field which has been used for three years or so as a pasture. The liberal application of land plaster (gypsum) in the spring would undoubtedly increase the grass materially, while the sowing upon it of lime in the fall—from ten to thirty bushels per acre may be used—would prove still more beneficial. Bone-dust might also be sown upon the field to advantage, especially if it has been long pastured or cropped.

Scurvy Legs in Fowls.—W. S. Fowler, Michigan City, D. T. At the first appearance of a scaly enlargement on the legs of a fowl it should either be killed, or if worth doctoring, then the fowl should be separated from the flock and placed in dry, warm quarters. Feed flesh once a day, with abundance of other feed. Wash the legs daily with a weak solution of sugar of lead, and when dry rub with a mixture of creosote and lard. By no means allow the fowl to get its legs wet, but keep it dry and warm until a cure is effected.

Plowing Ten Inches and Sub-Soiling Ten More.—Mrs. Nellie E. DeGraff, Vanderburgh Co., Ind. It is no doubt possible in a mellow soil to plow ten inches deep, and drive the sub-soil plow still ten inches below that, but as to the author you inquire about it is safe to say he never did it. To plow seven and sub-soil five more, is about what is actually done. After thorough working year after year, it is easy to go deeper, and so the soil may be after a while deepened to the extent named.

Cows Eating Wood.—F. P. Sawyer, Windham Co., Vt. Cows often develop an abnormal appetite and chew bones, old shoes, pieces of wood, and even lumps of stable manure. This action can be charged more correctly to bad habit than the presence of disease in the cow, and salt will not cure it. Like a boy with tobacco, or a girl chewing gum, the cure is to prevent the use of it. If necessary confine the cow in a clean lot or stall until she changes her mind. Plenty of good grass and other feed will usually effect a cure of this bad habit.

Cyclones.—Herbert Cope, Plymouth Co., Iowa. A cyclone is a storm of wind and rain moving with a rotary motion around a calm center. Cyclones are accompanied with lightning and a terrible noise. The rotary motion gives them great force in destroying buildings and other farm structures. Where they are so destructive at the West, places of retreat are sometimes dug in the sides of hills, or made like cisterns in level ground. Part of a cellar can be so covered with logs so anchored as to be perfectly safe as a retreat at the approach of a cyclone.

Dishorning Cattle.—H. F. Clark, Butte Co., Colo. Horns are in some respect a great objection on cattle. There are three methods of getting rid of them. Breeding them off by using a polled bull in the herd; sawing off the matured horns closely to the head; or removing the matrix or embryo horn. Cutting off the matured horn close to the skull is painful, but not dangerous to the animal, as there is but little bleeding. Removing the matrix on the calf's head when a few days old is not very painful or at all dangerous, but it does not always have the desired effect, as dwarfed horns are apt to form afterwards.

Dried Persimmons from Japan.—By the kindness of our friend, Mr. Kizo Tamari, of the Agricultural Department of Japan, we have been favored with samples of this fruit, as dried for market by his countrymen. The fruits are sun-dried, are covered with a white, sugary meal, and are as large as the very largest dried figs, which they resemble somewhat in flavor. The calyx of each fruit remains attached and forms a convenient handle while eating them, while the seeds form a very inconsiderable portion of the fruit. We find them most agreeable to the taste, and they would probably become a favorite article for the desert if introduced.

Mud from a Lake.—G. Mac, N. B., asks: "Would mud from the bottom of a lake be of any use as a fertilizer, it being of a rich, dark color, and quite fine, and mixed with leaves, etc.? How should it be used?" The nearer black it is in color, the more valuable is the mud likely to be. The mud should be raised from the lake and placed where it can drain and dry. When thoroughly dry, it must be hauled under cover, or a tight shed built over it. The dry mud is not very valuable when used as a fertilizer by itself, but as a component of a fertilizer its value is generally conceded. A profitable use for it is to place it in the stalls of horses and cattle as an absorbent. It takes up the rich liquid excrete of the animals, and forms a fertilizer of great value. It may profitably form a part of all composts, whether mixed with stable manure, with any animal refuse, or with the general wastes of the farm.

Scalding Bran—Mangolds.—A. J. Wright, Ontario, Canada. There is no advantage in scalding bran for cattle. They assimilate it quite as well if not better, in the raw state. Scalded bran is useful when steamed with damaged hay, to give it a better flavor, but even this practice is questionable. In very cold weather, however, scalding makes a slop that is very grateful to cows. Mangolds are ripe when they have completed their growth, and may be fed as soon as pulled. They are good food so long as they keep well, without regard to the time of year, but should be fed before they start into growth in spring.

A Fresh Cow not Giving Milk.—Wm. Dudley, Steuben Co., U. T. When a cow has given an extraordinarily large yield of milk for one whole season it rarely happens that she can follow this with another season's yield equally abundant. In like manner, fruit trees that bear well one year, rest themselves by giving a small yield the next. There are often cases where the cow after one season of generous yield will hardly give milk enough for her next calf. The only remedy is to feed her up into good condition, and wait for the next calf. Meantime she must be regularly fed and milked, and her system toned up to a condition favorable to a large milk yield.

Killing "Blue" or Canada Thistles.—"Subscriber," Frederick Co., Md. There is but one way to eradicate this troublesome weed, and that is by patient and persistent labor. When thistles have become established in a pasture or meadow, they should be cut with the scythe before blossoming, which will often weaken them so that they die in dry weather. A chisel-shaped tool attached to a strong handle, may be used to sever the roots and pry them out. This is an extremely useful tool in the hands of the grandfather who has become too old for regular work. He can use it as a walking staff, and dig up the stray weeds he meets in his walks. Blue thistles can be eradicated by thorough plowing and cultivating the ground.

How to Rid a Pond of Frogs.—J. N. Swayne, Allegheny Co., Pa., has a pond that he wishes to clear of young frogs. If it is a small pond, the best plan would be to draw off the water and thoroughly scrape the bottom. This would not only drive the frogs out, but destroy their spawn. A thorough application of air-slaked lime over the pond may drive the frogs out, but the relief would be but temporary. A "sure cure" would be to buy a large flock of ducks, and confine them to the pond for several months with nothing to eat. They would soon hunt the frogs out of it. They must stay long enough to let all the remaining spawn hatch, and the young frogs get large enough to tempt a duck's appetite.

Live-forever as a Weed.—Thirty years ago, Live-forever, *Sedum Telephium*, was common in gardens, especially in old gardens. It was cultivated more as a curiosity than for its beauty. A stem cut off and hung up at a window would continue (apparently) to grow and even bloom, illustrating its right to its common name. It now, being shut out of gardens, has taken up with the fields and roadsides. From the inquiries that come to us, it is as much of a live-forever as a weed as it was in the garden. We have published methods for destroying it, but the only report of success was from one, who smothered the plants by a heavy covering of bog-hay. That was several years ago. If any have had success with this or other methods, will they please report?

To Drive Off Melon and Squash Beetles.—H. Warner, Monmouth Co., N. J. On a trial last year with a field of melons we found a few handfuls of tobacco stems, cut small in a fodder cutter, and scattered around the hill and under the vines, effected a complete exemption from attacks by the various insects which injure melons, squashes and cucumbers. The squash-vine borer even, took a dislike to the tobacco, and gave no trouble. The rain washes some of the soluble parts of the tobacco into the ground, and so protects the roots from the small larvæ of the striped beetle, which cause the vines to wilt. If, as it is supposed, insects find their food by the sense of smell, the overpowering odor of the tobacco accounts for its preservative effect.

Arizona Fruits.—J. T. Allen, Maricopa Co., Arizona, writes us: "We have some of the best valleys for fruit growing in the world, and can raise nearly all the tropical fruits. Formerly wheat and barley were the only crops that received any attention, but now apricots, peaches, pears, figs, grapes, almonds, and all kinds of fruits adapted to this climate are planted extensively.

A Substitute for Corn.—In our April number Mr. R M. McCree, of Colorado, wants to know what will be a good substitute for corn for fattening cattle, his latitude being too high to raise corn. Mr. S. C. Sunman, of Huerfaro Co., Col., writes us that he has found millet hay very fattening for cattle. His elevation is about the same as Mr. McCree's, and he raises good crops. He sows about the tenth of June, and cuts before frost.

Cooked or Raw Feed.—C. G. Griscam, San Saba Co., Texas. There was a great rage in favor of cooking or steaming feed for live stock of all kinds some years ago, but after full experience and many scientific tests, it has been conclusively proven that steaming good, wholesome feed is rather more detrimental than useful, even for feeding hogs. Steaming gives some value to damaged hay, roots, etc., when mixed with a liberal allowance of ground feed, but the steaming probably costs more than it returns.

Learning the Dairy Business.—Chester G. Miller, Hamilton Co., O. A young man wishing to learn the dairy business should first decide which branch of it he prefers to follow—selling milk, or making butter or cheese. He should then hire himself out to some farmer who is making money in the branch of the business he has selected. After one or two years' apprenticeship, he will be sufficiently proficient to begin business for himself. Rather than form a partnership, even with a capitalist, it is better to begin on a small scale and gradually build up. The location has nothing to do with success. It all depends upon the man.

Cranberry Culture.—D. S. Borden, Crow Wing Co., Minn., has a large cranberry marsh, bordering on a lake, which fails to produce, some years, and asks us if it would be any benefit to have the marsh overflowed, and if so how deep the water should be, and how long it ought to remain. Flowing would probably remedy the difficulty. In this latitude cranberry growers let water on their marshes as cold weather approaches, and drain it off in the spring, the time of flowing usually extending from November to May. The water should be deep enough to prevent the plants from freezing. Where insects that prey upon the leaves are troublesome, the marsh should be flowed again early in June for two or three days. For more definite information see the work entitled "Cape Cod Cranberries," by James Webb, just issued by the O. Judd Company.

Bad Milk in Spring.—Wm. Tough, Columbia Co., N. Y. There are many prevailing theories concerning the causes of bad milk at all seasons of the year. It is claimed by many writers that cows always give milk from which good butter cannot be made when they are going dry. This may be one of the causes for the cows giving bad milk. As a rule, however, a very close inspection of all the surroundings usually finds some local cause for the trouble. Mr. Tough says his cows give bad milk as the weather begins to get warm in the spring when they are fed, among other things, on beets and barley sprouts. Have not the beets began to rot, or the barley sprouts got too sour? Put your nose to work to find the trouble, and inspect the dairy-room and utensils. The cause is surely local, for there is no reason why the milk should not be good in the spring, especially as most of the cows are probably fresh.

The Monterey Pine and Monterey Cypress.—C. Roberts, Omaru, New Zealand, inquires as to the economical uses of these California evergreens, whether their timber is valued for fencing, building, or cabinet work. The Monterey Pine, *Pinus insignis*, while valued, wherever it is hardy, for its ornamental character, which, as expressed in its specific name (*insignis*), is "remarkable," is inferior to many other pines in its timber. In his exhaustive "Report on Forest Trees," Prof. Sargent says that the wood is "light, soft, not strong, brittle," and that it is "locally" somewhat used for fuel. The wood of the Monterey Cypress, *Cypressus macrocarpa*, the same authority describes as "heavy, hard, strong, rather brittle, very close grained, compact, easily worked, very durable in contact with the soil, susceptible of a beautiful polish, odorous; color, clear bright brown, streaked with red and yellow, * * * very beautiful, and of undoubted value for cabinet work."

The Horse's Oat Ration.—"W. J.," Clark Co., Dak.—A horse weighing fourteen hundred pounds, when hard at work, would probably require sixteen quarts, or a half bushel of oats a day. This should be given in two, or better yet, three feeds a day, with as much clean, bright hay as he will eat. When idle, the horse would probably be satisfied with one-half the amount. Some judgment, however, is necessary in making up a ration for a horse. Those with large bones and loose-looking joints generally require more food in proportion to their weight than short-coupled, closely-knit, snug-looking horses. There is great difference in the assimilating powers of horses, and they should be fed accordingly. Increase or decrease the ration as required to keep the horse in good medium flesh. Bear in mind that the horse most needs his food an hour or so after his severe exercise has ceased. Do not attempt to feed beforehand for work to be done.

Form of a Cistern.—A. G. Davison, Appanoose Co., Iowa, wishes to know if common limestone rock is suitable for walling a cistern, and will it make the water "hard" if properly cemented? He also asks what is the best form to build a cistern? If properly cemented, a cistern is free from the influence of anything outside of it, except that which enters through the spout or the man-hole. The familiar circular form holds more water for the material used than any other. Make the bottom flat, and do not "point" the wall as it rises. Begin the arch below the frost line, and bring the manhole high enough above the surface of the ground to insure good drainage from the pump. Use the best quality of cement and the cleanest possible "sharp" sand, or you will never get through patching up the leaks. See that the stones set firmly back against the earth, so that they will not give way before the pressure of water. A cistern which has been laid with poor cement may often be made tight with a coat of paint when other means fail, but, this necessitates perfectly dry walls.

Average Yield of Butter.—S. J. Jones, Rutland Co., Vermont. The product of butter in the United States, as stated, viz.—thirteen hundred million pounds, is above the true mark. The census of 1880 gives seven hundred and seventy-seven million. Of the fifteen million cows in the country, one-half are used for breeding beef cattle, or are used in the manufacture of cheese, leaving seven and a half millions for producing milk for sale, and for making butter. The average yield of butter in fair to good dairies, of fifty cows or over, is one hundred and seventy-five to two hundred pounds a cow; in very good dairies two hundred and fifty, and a dairy which reaches the high average yield of three hundred pounds is rare in our best butter sections. In your own State, of Vermont, the census gives two hundred and seventeen thousand cows in 1880, and the butter product as about twenty-five million, two hundred and forty one thousand pounds, and over a million and a half pounds of cheese. Thus it is clear that with a fair allowance for the butter lost in the production of the cheese, and in the milk fed to fattened calves, and in that sold and consumed as whole milk, the average quantity of butter per cow in your State would not be one hundred and sixteen and a third pounds per cow, but much higher, probably very near to two hundred pounds.

Attractions of Idaho.—R. E. Emerson, writes us from Ada Co., Idaho: "Since I read Mr. David Judd's travels westward through Dakota, I have been looking for him here in Idaho, the 'Gem of the Mountains.' I think we have the finest climate in the United States; the past winter has been extra fine, thermometer getting down to only two above zero; three to six below I think would be an average for past ten or twelve years. Cattle live in the hills all winter, and do well. Our elevation is two thousand eight hundred and eighty feet; can grow all kinds of grain in abundance and good quality, and fruit, apples, peaches, pears, plums, and all kind of berries of the finest. Our season is very early, a good deal of gardening being already done. In March number I read notes from Skagit Co., Washington Territory, that are very interesting, and I, like the writer, when you come West, wish you would come this far. I am satisfied you will not feel sorry; I know we are a long way off, but we are not blown with blizzards, nor all frozen up. I wish to say a word about 'Farm House,' seven hundred dollars, in March number; I think if Dupage Co., Wis., had left out one post on front porch, it would have improved the looks of house, so they would not have been directly in front of windows. I am a builder myself, and know how it looks. I think March number full of extra good points. I find plenty of items, drawings and suggestions in every number, each one worth the price of the paper alone, besides the 'Premiums.' I have occasion to refer to 'Law Book,' 'Cyclopædia,' or 'Dictionary' very often, and always find an answer." Thanks for your appreciation.

Animal Ailments.

Hoove.

Hoove is a distention of the rumen, or first stomach, by gas from undigested food. This condition may arise from weakness of the digestive organs or unusual indigestibility of the food, or both. Prevention is better than cure, and is accomplished by strengthening the digestive organs, and keeping the animal from eating indigestible food, especially that which will rapidly ferment. Hoove rarely occurs at any season other than spring, because the causes which produce it rarely exist at other seasons; and, therefore, it is most important to take preventive measures now. Cattle that have been poorly fed and sheltered during the winter, require the most care, as they are weakened, and also more apt to gorge themselves with green food. All cattle should be carefully fed, and perhaps given some medicine, as, even under the most favorable conditions, the long course of winter feeding and confinement reduces the vigor of the digestive process. Make the change from dry to green food gradually. The first day do not leave the cattle on the grass longer than an hour; and increase the time by half an hour each day for a week, when they may be allowed on the pasture all day. But it is doubtful if cattle should ever be allowed on pasture until the dew is off; certainly not until late in the season, and not even then on rank red clover. The moisture hastens fermentation and increases the danger. It is well to keep hay where the cattle can nibble at it, as they will when they come from the best of pasture. Keep salt in a trough in the pasture. Cattle will not eat too much salt when it is kept before them.

If the disease is noticed in its early stages, relief may usually be given by administering chloride of lime, in from two to four drachm doses. If you have not the chloride of lime, give a teaspoonful of pulverized charcoal in half a pint of sweetened milk or water, every fifteen minutes, until relief is afforded. If these remedies fail, lose no time in getting a veterinarian to puncture the stomach with a trochar. If a veterinarian can not be had in time, try puncturing the stomach yourself, as the animal will die unless relieved. Use a sharp-pointed knife, and make the incision midway between the hips and the last rib in the left flank, and about three inches below the level of the top of the back. Insert a pipe stem, or better a goose-quill in the opening, to prevent the food in the rumen getting into the cavity of the abdomen and causing inflammation. Afterwards give the animal a stimulating draught—say an ounce of powdered ginger and a teaspoonful of strong ammonia water in a bottle of tepid water.

An Injured Foot.

Horses' feet are compelled to travel through so many rough places, they are constantly receiving injuries more or less serious. These injuries generally come from thorns, splinters, or jagged rocks, but sometimes from caulking, by stepping one foot upon the other. In the event of a foreign substance getting in the foot, the remedy is slow work, and a poultice, with sufficient cutting when necessary to loosen the article that makes the trouble. If the injury comes from caulking, there must be rest, and the horse's system toned up first with mild cathartics, and then sufficient cooling and nourishing food. A liberal pasture is the best possible place for such a patient.

Hemorrhoids or Piles in Pigs.

With pigs this trouble is seldom seen, and then is only the outcome of some constitutional disturbance. They are the result of an abnormal development of the veins of the rectum, and are usually very sensitive and painful, and in extreme cases the rectum protudes. When the presence of these hemorrhoids is discovered, it will generally be found that the pig is also suffering from fever and constipation. Administer a cooling and laxative drench; afterwards a sedative, and let the diet be of a laxative nature. The local treatment consists of crushing the tumors or excising them by means of ligatures, and applying astringent or caustic washes. An animal that has once suffered from piles is not necessarily liable to a return of the attack.

Pink-Eye—Influenza.

Pink eye is a term commonly given to inflammations about the eyes or nostrils of the horse, but in most cases the ailment can be directly traced to an influenza which of itself assumes a variety of symptoms. The first attention is usually attracted by the dumpishness or debility of the horse; the eye becomes red or blood-shot and the lids swollen, and the light pains them. The hind legs swell and other parts of the body become dropsical. The first thing is to get the patient into a clean, dry stall, where he can get pure air. If limbs are cold, rub and bandage them, or use liniments. Give the following drench: Sulphur, five drachms; cream of tartar, two drachms; salt, one ounce. Mix these with flaxseed tea.

What I Saw and Heard on the Frontier.

GEN. GEORGE W. WINGATE.

JACK COLE.

For days Fisher, my guide, had been anxiously watching for an acquaintance, Jack Cole, who had a cabin in the Madison Basin, Mon., and from whom he had expected to obtain the latest information in regard to game. This Jack Cole was a typical plainsman. An old buffalo hunter when the buffalo existed, he had been a scout for Generals Howard and Miles in their Indian campaigns. Having killed four men in various little difficulties, he enjoyed a reputation among frontiersmen such as Sullivan has in Boston. At present, he was engaged in the prosaic occupation of supplying fish and game to the hotels in the Yellowstone Park.

While Fisher and I were riding ahead of our party, on the day after leaving the great Geysers, and were discussing the chances of meeting the redoubtable Cole, we saw a wagon approaching, driven by a big, fresh complexioned man, with a broad brimmed hat. Presently, Fisher exclaimed, "Why, there he is," and galloped off, I following him. As we neared the wagon, Fisher, who was always quick in his motions, reined in his horse, jumped off and ran hastily up to the wagon. Its occupant produced a big revolver like a flash, but the next instant, recognizing Fisher, restored it to its hiding place in the wagon, and in reply to the questions put him, gave us full information of where to camp and where to hunt.

After his departure, I asked Fisher what made Cole reach for his pistol so promptly.

"Well, you see," said Fisher, "a man like that never knows at what time some friend of some of the fellows he has shot may go for him, and he wants to get the first shot. Then, besides, he may have had some little difficulty with the law and don't care to be arrested. I guess he thought I was a sheriff. It was funny to see him reach for his pistol, wasn't it?"

"Yes," I replied, "funny for me, but scarcely so funny for you."

On our return from the Great Cañon we crossed the Divide and descended into the Madison Basin. About noon we reached an abandoned log stable on the banks of the Madison, known as Fourteen Mile Station, which had once been used as a stage stable.

As I rode around the rear of the building I found a buckboard wagon standing in front of the doorway, across the seat of which lay a Winchester rifle. Seated on the door-sill was Mr. Jack Cole, peacefully reading a pamphlet "History of England." I noticed, however, that his Winchester was placed so that its butt was within easy reach of his hand, and that a heavy revolver protruded from the hip pocket of his canvas overalls. He was large and stout, with blonde complexion, a heavy yellow mustache, and a long goatee, and looked like a German brewer, except that his hair was as long as a woman's, and was twisted up into a knot at the back of his head. He wore a heavy broad brimmed hat with a band composed of heavy figured silk cord, braided in a taper like a whip lash so that it was an inch thick in front, and narrow behind. His other attire was not peculiar. His voice was low and quiet, and he was very polite, particularly to the ladies. We chatted with him for some time while we were eating our lunch and enjoying our noontide rest. He mourned sadly over the disappearance of game from the country.

"It is no use any longer," he said sorrowfully, "for a man to carry a rifle in Montana, and I suppose old hunters like me will soon have to starve." Still, he denounced the recently enacted game laws of the Territory. "They were only passed in the interest of a set of foreign dudes—British aristocrats who cared for nothing but themselves," and he narrated with evident enjoyment, how he and some other old buffalo hunters, who had been warned by the agents of some of those gentlemen to desist from hunting, had served notice upon the gentlemen themselves to leave the country, which notice the latter had been wise enough to obey.

No one seeing Cole sitting there, perfectly self-possessed, talking in his quiet way, would have imagined that he was anything of a desperado.

I was afterwards told that many of the frontiersmen who have killed a number of men are "more sinned against than sinning." It was explained in this way:

"A fight out here, in past days particularly, means a fight with pistols. A man gets in a brawl, pistols are drawn and he kills some one. If this is done fairly, no one thinks much of it. Then suppose this man is unlucky enough to get into another difficulty and again kills a man. From that time he commences to be known and talked about, and becomes in constant danger of an attack from the friends of the man he has shot, and still more from a certain class of 'rustlers' who are desirous of earning a reputation as a 'man-killer' for themselves by shooting somebody who bears the reputation of being one, just as Eastern pugilists are constantly trying to knock out John L. Sullivan. The knowledge of this keeps the man always on the alert; he seldom drinks to excess, is always prepared to defend himself, and he constantly studies how to shoot accurately and above all, quickly. Consequently, any one who does tackle him is pretty certain to get the worst of it. In this way, a man without desiring it in the least, may be actually forced into killing a number of others."

RECOGNIZING OLD COMPANIONS.

A few miles before reaching the town we passed through the prairie on which our ponies were kept when at home. There was quite a herd of other horses there who did not seem to understand why their old companions, whom they quickly recognized, would not rejoin them, as the latter were exceedingly anxious to do. The herd would gallop up to the road and stand until our party got past them, and then all would squeal, kick their heels in the air and dash off at full speed for a few hundred yards, to repeat the performance there when we overtook them. They acted like a lot of impudent, idle boys who were teasing some companions who were obliged to work instead of coming out to play. Their example was a great temptation to our ponies. The latter were too tired and hungry to be very restive, but they were quite disposed to be sullen as they found themselves turning their backs upon their companions and home.

COWBOY LIFE.

Up in one corner of the bottom were two weather beaten tents, in front of which a couple of saddled ponies stood hitched to a bar. These were the headquarters of the cowboys having charge of the range, and none of us envied them either their occupation or their residence. There is a certain excitement at times in being on horseback and riding over the country, as there is in being at sea, but taken on the whole, a cowboy's life is like that of a sailor—hard, dull drudgery. It is not surprising that they are apt when reaching civilization to seek relief from the monotony of their lives as sailors do, by a "lively rollicking." But cattle owners are more particular now than they used to be, and enforce stricter discipline. Their men are required to be more humane, and there is much less hard drinking and revolver shooting than was at one time permitted; and the men are getting to be of a better class. One of them rode out as we passed the tents and accompanied us for some distance, chatting upon different matters and giving information about the fords on the river. Travelers on this road are infrequent, and I have no doubt he was glad to see a new face. He was in the regular cowboy dress (which showed the marks of exposure to the weather), and I noticed he struck his horse at each stride with his big Mexican spurs. This was not so cruel as it seemed, for these spurs are dull and not nearly so severe on a horse as are the small, sharp rowels used in the East; certainly, the pony did not seem to pay the least attention to it. Like all the men I saw of his class, he was quiet and pleasant in his manners, and more than willing to oblige a stranger. In fact, I never saw anybody on the plains, who showed by act or word that he was a "rough." Whether this was because there were ladies in the party, or because we were invariably fortunate in the persons we met, I am unable to say. I can only state the fact as I found it.

Of revolvers there was a great lack. I can only recollect seeing three during our whole trip. Neither did we see but two drunken men, and these were inoffensive. In over a month I heard decidedly less swearing than would be the case in one evening in a country store in the East, and witnessed not a single quarrel or even loud words. In fact, one of the things in Dakota or Montana most noticeable to a stranger is the soft, low tone in which conversation is carried on, together with the correct language and polite manners of the men. We were also quite surprised to find along our route a number of young Eastern society men blossomed out as cowboys, who spend their summers on the ranches and their winters in New York, and combine the cowboy and dude in a most astonishing manner.

"OLD FAITHFUL."

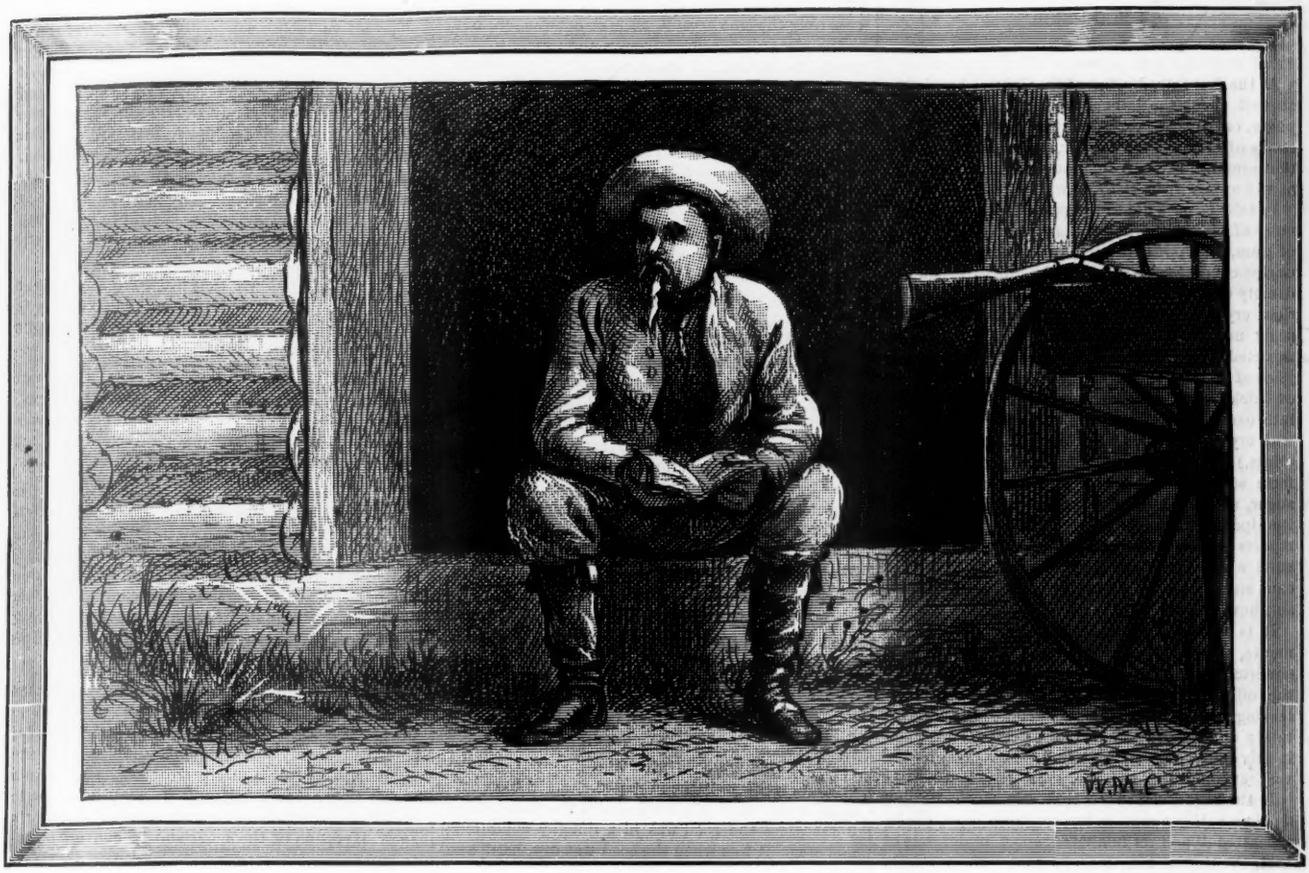
While tents were being pitched and horses picketed, we walked to the famous Yellowstone geyser, "Old Faithful," which was then nearly due.

A gentle ascent, broken into low steps or terraces over which little streams of water were meandering and forming shallow pools here and there, is crowned with an irregular mass of rock some six feet high and twenty feet in diameter, in the center of which is a hole the size of a hogshead. All around is barren rock of a whitish gray, and rough like a nutmeg grater. The little pools formed in it by the geyser water are of brilliant colors and full of beautiful formations like frost work. As a friend of mine said, "they were like an emerald-tinted stream, flowing in a trough of gold." The crater itself is composed of globular masses of a peculiar rounded appearance, like huge beaded cushions.

While we waited (being careful to keep on the windward side), the crater filled up with hot water, which boiled and tossed and churned itself into foam and then sank away again; then with a gasp and a subdued growl the water shot up two or three feet and fell back, but not quite so far, and again tossed itself into foam. Another louder rumble, and it went up a foot higher than before and fell back again; then another still louder, and the height of six feet was attained; then, just as the water was apparently subsiding, came a tremendous and appalling roar and a mass of seething, scalding water, the entire diameter of the crater, shot bodily up, and up, and up, in jet after jet until a solid column was created one hundred and thirty feet high (which is just about the height of the Equitable Building in Broadway), and which gracefully waved in the wind and fell like a cataract opposite us, while the steam rising from it seemed to reach the very heavens.

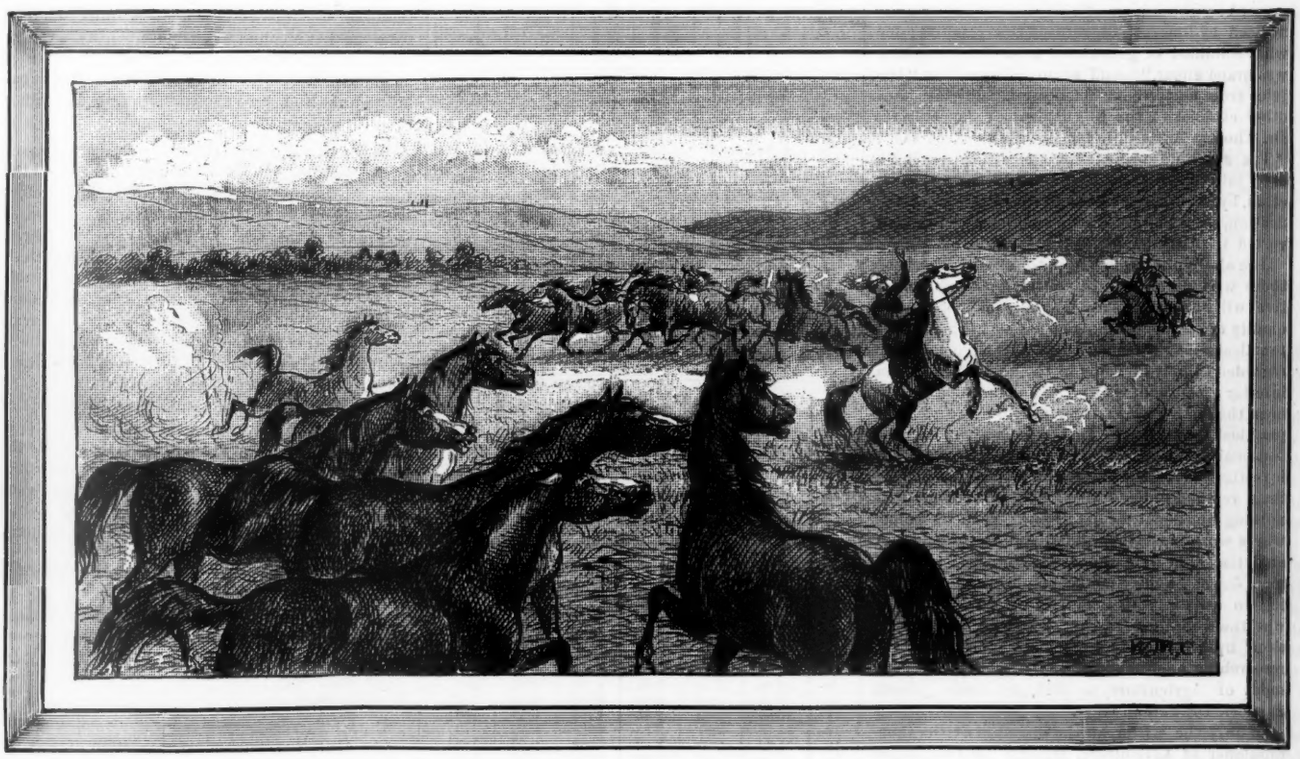
No language can depict the grandeur of the sight. At the first roar, we all retreated precipitately to a safe distance. But seeing the regularity of the movement of the water, we gradually approached to within twenty feet. After playing about four minutes, the column wavered and gradually fell, and then with a great gurgle the water disappeared down the tube of the crater, leaving the latter perfectly empty, but so hot that all traces of water instantly disappeared. With one exception all the craters of the Great Geysers are situated on little knolls raised some distance above the rock surrounding them, which must have been built up by the water. Many persons write their names in the little pools, through which the water ejected from "Old Faithful" finds its way, but no names over two years old were legible, the others have been gradually covered by the deposit from the water.

It is quite common for visitors to throw articles of clothing into this geyser to be washed; they all come out in the course of time, but usually in fragments. We picked up a piece of silk handkerchief, the size of a finger nail and some similar pieces of flannel shirts. They were very clean, but their usefulness as clothing had become greatly impaired. One geyser known as the "Laundress," is quite celebrated as a washerwoman.



JACK COLE.

Drawn (by Cary) and Engraved for the American Agriculturist.



RECOGNIZING OLD COMPANIONS.

Drawn (by Cary) and Engraved for the American Agriculturist.

Sorghum.—Sugar in the Stalk.—When at Maximum.

DOCTOR PETER COLLIER.

At the first introduction of the Chinese Sorghum, as well as at the later introduction of the Imphees, or African varieties, the presence in the stalks of an amount of sugar, practically equal to that present in sugar cane, was fully demonstrated, as will appear from the following citations:

In 1855 Louis Vilmorin reported that "the difficulty of purging sorghum sugar through presence of gum, only presents itself in the employment of unripe canes, for, as soon as the juices attain the density of 1080 and more, they contain little else than crystallizable sugar, and their treatment presents no difficulty." In 1857, Dr. C. T. Jackson reported that "a ripe sorghum plant yielded a juice of 1062 sp. gr., which yielded 16.6 per cent. of thick syrup, which crystallized almost wholly into cane sugar, the whole mass becoming solid with crystals." Dr. C. A. Goessmann, of Amherst (Mass.) Agr. College, in 1861 reported that "the facts so far obtained prove that, besides cane sugar, no other kind of sugar exists in the juice of the ripe and sound sorghum cane;" and again he reports: "I have already mentioned that the results which I obtained entitled me to believe that cane sugar is the only kind of sugar that exists in sorghum juice."

It is most unfortunate that these early statements, which have of late years been very fully confirmed, should have been called in question by the official reports of other investigators, thus leaving the whole matter in a condition of uncertainty and doubt. For example, Dr. Goessmann in this earlier report, says that "these results are very encouraging, as they show that more than half the sugar, or five per cent. out of nine to nine and one-half per cent. in the sorghum juice, can be separated;" and yet in a later report, under date of 1881, Dr. Goessmann declares that "the sorghum juice furnishes, when properly treated a good syrup; yet it is of little importance for the production of sugar." Professor Erni, chemist of the Department of Agriculture, reported that, "contrary to my expectations, I found the expressed sorghum juice of ripe cane, whether neutralized by lime or not, refused to crystallize; for what solidified or granulated after long standing was grape sugar." And again he says that "the juice from unripe cane readily crystallized." Another chemist of the Department of Agriculture, Dr. Thomas Autisell, in his reports for 1866 says: "The sorghum, while it contains cane sugar in its early juice, loses it as it advances in life; and in all cases, by the usual methods of defecation and clarification, its existing sugar is almost wholly converted into uncrystallizable sugar."

The above quotations, from the official reports of those who might fairly be considered as authoritative, will serve to explain why the sugar producing quality of the sorghum plant has so long failed of practical recognition, and that it had come to be regarded as only of value in the production of an inferior quality of syrup. So contradictory had been the testimony in reference to every point of practical importance, that a committee of the National Academy of Sciences, appointed for the investigation of the sorghum sugar question, in their report declared that, "It is evident that nothing was definitely determined, even on points where work in the laboratory, and the exercise of analytical skill were apparently sufficient to settle most doubts, aside from economic questions relating to questions of manufacture. Such we find was the condition of the 'sorghum sugar question' up to a period immediately preceding the researches undertaken by the United States Department of Agriculture, in 1878, by their present chemist, Dr. Peter Collier."

In 1877 the writer, at the direction of the Commissioner of Agriculture, William Le Duc, began the investigation of the sorghum plant, and this investigation was continued until the spring of 1883, and the present papers are intended to present the result of these investigations. It was found that early in the life of the sorghum plants the juice in the stalks contained an excess of glucose over the true crystallizable or cane sugar; but as the plant approached nearer and nearer to maturity, the content of glucose in the juice gradually diminished, while the amount of sucrose or cane sugar rapidly increased; and this content of cane sugar attained its maximum when the plant had matured its seed, and that this maximum was practically maintained for months after this period of maturity, thus affording ample time for working up the cane for sugar. Although the several varieties of sorghum differed widely in the time required for maturity, they each finally attained practically the same content of sugar when mature, and it was found, as perhaps might have been anticipated, that the variety requiring the longest period after planting to reach maturity, gave a proportionally heavier crop, of course, than the earlier maturing varieties. For several years a number of varieties of sorghum were planted side by side, and long before they were even in blossom, daily analyses were made of the juices expressed from the stalks. The results of these analyses were practically the same year after year, and it was found that a similar increase in sugar and decrease in glucose occurred in most of the varieties grown, the principal difference being in the length of time required for the different varieties to reach any given stage of development.

The following table gives the average results obtained in 1880, from the analyses of the juices from the stalks of thirty-eight varieties of sorghum, at the different stages of development of the plant. The successive stages, from 1 to 19, being reckoned from about a week before the panicle or seed head made its appearance at the top of the plant, to many weeks after the maturity of the seed. Stage 5 was when the plant was in blossom; stage 7 was when the seed was in the milk; stage 9 was when the seed was in a doughy condition; and stage 11 was when the seed was dry, hard, and fully ripe.

Stage of Development.	*Length of Stalks in Feet.*	*Diameter of Stalks at the Butt in Inches.*	*Weight of Stalks in Pounds. Unstripped.*	*Weight of Stalks in Stripped. Pounds.*	*Per cent. of Juice Expressed.*	*Specific Gravity of Juice.*
1	7.5	.9	1.93	1.34	59.06	1.031
2	8.5	.9	1.93	1.46	59.60	1.036
3	8.8	.9	1.78	1.39	59.67	1.037
4	9.1	.8	1.83	1.44	61.61	1.041
5	9.3	.9	1.96	1.55	63.05	1.045
6	9.7	.9	2.02	1.60	62.79	1.050
7	9.7	.9	2.11	1.55	63.85	1.052
8	9.3	1.0	2.10	1.63	65.68	1.055
9	8.8	.9	1.87	1.40	64.88	1.058
10	8.9	.9	1.81	1.38	64.83	1.061
11	9.1	.9	1.94	1.48	65.02	1.063
12	9.0	.9	1.81	1.37	63.39	1.065
13	9.1	.9	1.86	1.34	62.99	1.066
14	8.9	.9	1.82	1.32	61.72	1.067
15	8.9	.9	1.81	1.32	60.45	1.067
16	8.7	.9	1.73	1.22	61.20	1.070
17	7.7	.9	1.69	1.25	60.17	1.078
18	8.5	.9	1.44	1.15	62.09	1.069
19	8.5	1.0	1.81	1.53	56.04	1.080

Stage of Development.	*Per cent. of Sucrose in Juice.*	*Per cent. of Glucose in Juice.*	*Per cent. of other Solids in Juice.*	*Co-efficient of Purity.*	*Per cent. of Available Sugar in Juice.*	*Number of Analyses.*
1	1.76	4.29	1.75	22°6	4.28	58
2	2.96	4.45	1.86	31°9	3.35	69
3	3.51	4.50	1.78	35°9	2.77	57
4	4.34	4.34	1.91	41°0	1.91	70
5	5.13	4.15	1.92	45°8	.84	75
6	6.50	3.99	2.45	50°2	.06	62
7	7.33	3.86	2.19	54°9	1.33	70
8	7.69	3.83	2.37	55°4	1.49	111
9	8.95	3.19	2.42	61°5	3.34	266
10	9.98	2.60	2.50	66°2	4.88	217
11	10.66	2.35	2.72	67°8	5.59	166
12	11.18	2.07	2.83	69°5	6.28	170
13	11.40	2.03	2.82	70°2	6.55	183
14	11.76	1.88	2.96	70°8	6.92	191
15	11.69	1.81	3.15	70°2	6.73	217
16	12.40	1.64	3.32	71°4	7.44	339
17	13.72	1.56	4.07	70°9	8.09	197
18	11.92	1.85	3.42	69°3	6.65	191
19	12.08	3.09	3.62	64°3	5.37	30

The 19th stage was after repeated and heavy frosts, which had killed the plant.

The above table will repay a very careful examination. It will be seen that it comprises the average results of 2,739 analyses, or an average of over seventy-two for each variety of sorghum, and that they are pretty evenly distributed during the entire season, especially during that period when this plant is of greatest value for sugar production. The large number of analyses made absolutely forbid any question as to the substantial accuracy of the results, and a few of the more important practical points established by these analyses will be pointed out.

First: It will be seen, that the maximum weight of the crop was attained at the 1st stage, as is shown by the average height, diameter and weight of the stripped and unstripped stalks.

Second: The amount of juice expressed from the stalks was practically the same at all the stages, although contrary to the general impression, it was less somewhat in the earlier stages than it was for a long period after the ripening of the seed.

Third: The specific gravity of the juice is seen to have gradually increased from the 1st to the 18th stage, and it will be seen that this increase was practically due to the increase of sugar in the juice, so that it is found possible to accurately determine the per centage of sugar in any sample of juice, by simply ascertaining its specific gravity. Owing to the practical importance of this matter it will be more fully considered at another time.

Fourth: The percentage of sucrose increases steadily from the 1st to the 18th stage, while the glucose reaches its maximum at the 3rd stage, and then slowly but gradually diminishes to the eighteenth stage. The effect of the heavy frosts is seen in the increase of glucose, and the decrease of the sucrose in the last two stages, showing a slight inversion of the sugar and its conversion into glucose.

Fifth: The solids, other than sucrose and glucose, are seen to steadily but slowly increase in quantity from the earliest to the latest stage, and it will be observed that their increase is nearly equal to the steady decrease in the amount of glucose, so that the sum of the glucose and other solids is from the first an almost constant quantity. Owing to this fact, it is that the specific gravity becomes an almost exact measure of the content of sugar in the juice, as will be shown more fully at another time.

Sixth: It is obvious that the "co-efficient of purity," which is the percentage of sucrose in the total, which must also steadily increase therefore with the increase in the cane sugar or sucrose, as is seen to be the case until the very last stages, when the injurious effects of frosts were manifest. The consideration of the question of "available sugar" will be deferred to another paper, on account of its practical importance. The above table of average analyses of sorghum juices shows them to be quite as rich in sugar as the average of sugar cane juices grown in Louisiana. This will be seen by comparing the average results of the analyses of fifty-eight analyses of juices of several varieties of sorghum grown in Washington in 1884, with the average results of the analyses of seventy-two analyses of the juices of four varieties of sugar cane grown in Louisiana in 1884, and analysed by the same methods used in the analyses of the sorghums.

AVERAGE ANALYSES OF SUGAR CANE AND SORGHUM JUICES.

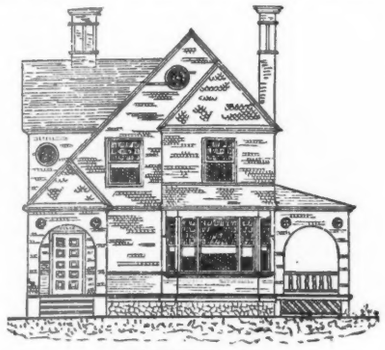
	Sugar Canes.	*Sorghum Juices.*
Sucrose	13.05 per cent.	14.76 per cent.
Glucose	.67 " "	1.27 " "
Other Solids	2.82 " "	3.65 " "
Co-efficients	78.09 " "	75.00 " "
Available Sugar	9.56 " "	9.84 " "

It is only necessary to add in concluding this paper, that the above high proportion of sugar in the juices of sorghum has been confirmed year after year by many thousands of analyses of many varieties, not only in the United States, but in France, Italy, Russia, and other countries of Europe.

Design for a Cottage Costing $3,000.

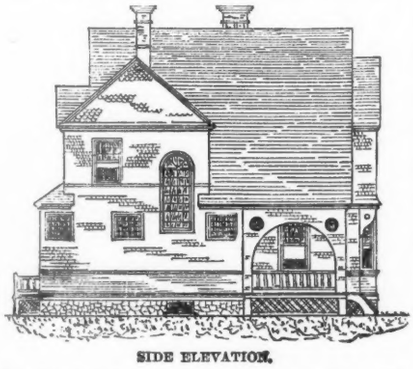
ARTHUR L. VALK, ARCHITECT.

This cottage is intended for a family of five. It is not designed for mere show, but for durability,



FRONT ELEVATION.

neatness, and comfort at a small expense. The parlor, dining-room, and kitchen are all on the same floor. On entering, one comes into a good-sized hall, with a neat and effective staircase to the floor above. The parlor has a cosy bay-window, provided with a seat all around. This room opens into the dining-room by folding doors, or by a curtained arch. The dining-room is of octagonal shape on one side, giving a very pretty effect to the interior. Open fire-places are provided for each of these rooms, and form a very desirable and attractive feature. There is a side porch, which opens out of the parlor, and is a source of great comfort during the summer months. There is besides a direct communication between the dining-room and kitchen through a large pantry, which is provided with shelves, a dresser for china, and other necessary articles of household use. A passage leads from the entrance hall to the kitchen, and is provided with a wash-stand and basin. The stairs to the cellar are under the main staircase, as will be seen in the ground plan. The size of the dining-room is fourteen feet and a half square. The parlor



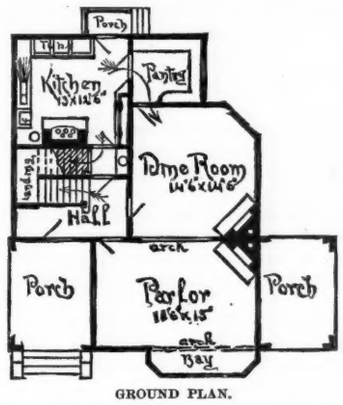
SIDE ELEVATION.

is eighteen and one-half feet by twenty feet. The kitchen is thirteen feet by twelve and one-half feet, and is provided with stationary tubs, sink, range, boiler, place for a flour barrel, and a dresser, and for kitchen utensils. There is also a servant's entrance, or rear porch-way—a very desirable feature, whether people employ servants or do their own work. On the second floor there are three large bedrooms, and a good-sized bath-room. The first floor is nine feet high, the second floor eight feet. This is a frame cottage, shingled on the exterior down to the first sill course, below this is upright clapboarding to the water-table. The foundation is stone laid up in rubble-work, and pointed above ground. All inside wood-work and general finish is pine rubbed and hard oil finished. The approximate cost of this cottage finished, inside with pine as above described, is about three thousand dollars.

LONG ISLAND TOMATOES.—After alluding approvingly to the item "Truck Farming on Long Island," given in our April number, a Brooklyn friend sends us the following: "Right at our own doors are grown the finest tomatoes in the world. There are no tomatoes that equal in size, beauty of color or flavor those that are grown on the sandy loam soils of Long Island. Indeed, Long Island holds the same relation to the growth of the tomato that the Sea Islands on our Southern coast do to the mainland in the culture of cotton. Your grocer will charge you more for Long Island tomatoes than for Jersey or Delaware. Large tomatoes are grown in other States, but the peculiar location of Long Island, situated between two immense bodies of water, gives it a climatic advantage in the raising of this healthful and delicious fruit not equaled by any other part of the continent."

Manitoba as a Wheat Field.

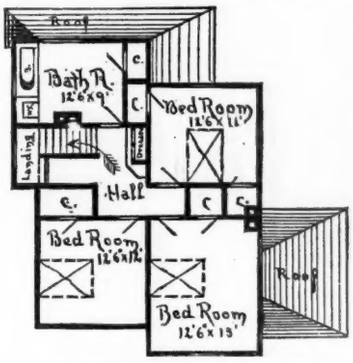
Of the 66,000,000 acres which comprise the Canadian Province of Manitoba, there have been surveyed about sixteen and a half millions of acres. There are 4,000,000 acres of swamp lands within the Province, and the remainder consists of the



GROUND PLAN.

timbered and rocky region lying around Lakes Winnepeg, Manitoba and the Lake of the Woods. The portion under cultivation is a little over one million of acres, hitherto chiefly devoted to the cultivation of wheat, and up to the 31st of last October, the Department of the Interior reported about 10,930,045 acres as having been taken up within the Province for homesteads and pre-emptions. By a recent arrangement made with the Province, the Dominion Government have ceded to the Province the swamp lands, and 150,000 acres of good lands for University purposes.

The remarkable fertility of the soil on the prairie section, especially that in the Valley of the Red River, is so well known that it is unnecessary that I should refer to it here. The winter climates, though generally severe in the latter part of December and throughout January, is a subject of much disparagement by those who prefer the thirty-five degrees and the forty degrees, but there are redeeming features about this severity, which the settler—the grain raiser—knows how to appre-



SECOND FLOOR PLAN.

ciate, even if the denizen of the metropolis, and of the town, would prefer to see fewer minus records, and more frequent thaws in the winter months than now happen. The incomparably hard wheat for which Manitoba is famous, could not be raised were the winter climate more variable and less severe than it is. The same remark applies to North-

REAR ELEVATION.

ern Minnesota and Dakota, where the winter climate possesses the same characteristics as those of Manitoba, and which districts produce a quality of wheat similar to that raised in the Canadian prairie provinces.

As late as 1876, the year which Earl Dufferin, then Governor-General of Canada, visited Manitoba and the Canadian North-west, the quantity of wheat raised in Manitoba was not sufficient for home consumption. The population was then less than 30,000; now it is five times that number, and the total quantity of wheat shipped from the different railway stations throughout the Province last year, amounted to 2,429,832 bushels. Of oats there were shipped 201,596 bushels. The quantity of barley was small—27,997—making a total grain shipment of 2,659,425 bushels. The quantity of grain remaining in the country, not reported, was about the same—wheat of course largely preponderating. The increase of land prepared over the preceding year, was thirty per cent, and this year the increase is about the same. The quantity of wheat reported from the North-west Territory last

SIDE ELEVATION.

year was 95,000 bushels, and about 6,000 bushels of oats. The population of that Territory is about 25,000.

As some interest is attached to the cost of raising a bushel of wheat in Manitoba, the most authentic information on this point is, that it costs just twenty-five cents, but this does not include interest on amount invested in farm machinery. In California, the cost has been placed at sixty cents per bushel, but this includes interest on farm machinery. If this is included in Manitoba, the cost might be justly placed at forty-five cents at the utmost figure, making the cost per acre nine dollars. At no time, within the Province of Manitoba, has wheat been lower than fifty-five cents per bushel, so that there has, so far, always been a profit to the farmer on this cereal.

So many countries raise soft wheats, that particular value is attached to the hard variety raised in this northern latitude. The kind which has met with popular favor in Manitoba, is the Red Fyfe, though of late an agitation has been raised in some quarters, in favor of the White Fyfe, White Rus-

sian and Gold Drop; but the Provincial Board of Agriculture recently refused to abandon the Red Fyfe, considering it as yet the safest and best variety in use. It is from Red Fyfe that the best samples of No. 1 Manitoba Hard have been produced, though these have been pressed closely by White Fyfe and Gold Drop. The "hardness," which is such a valuable quality in Manitoba wheat, is inseparable from the exhilarating summer air, which, like the cold bracing winters, is a prevailing climatic characteristic. Such wheat can not be raised in other latitudes, so that distinct value is attached to this hardness by the world's millers, and in the world's markets Manitoba (No. 1) Hard commands a higher price than any other variety.

It is not a little singular that prior to 1883, summer frosts were almost unknown in the Red River Valley. In that year a destructive frost occurred on the 7th of September, and in consequence a considerable quantity of wheat became unmarketable. In the following year, a premature frost occurring early in the same month did considerable damage to the wheat crop, and last year frosts again appeared and did much damage to the standing crops. The recurrence of these frosts is a matter for scientific investigation. The record of temperature within the Province, kept for a number of years, shows that white frosts are sure to occur in the second week in September, and their occurrence, even in the first week, is a contingency against which the farmer can provide. The summer season is very short, and the wheat grower must address himself to the problem of early sowing and harvesting. On an average, the wheat harvesting begins in Manitoba about the 20th of August, and the grain raiser has begun to address himself to the problem of economizing time.

It will be necessary for him to sow earlier, and be more expeditious in harvesting than he has heretofore been. This may be supplemented by obtaining an earlier variety of wheat than even Red Fyfe is, but it is probable that the quality of hardness will be sacrificed for the sake of earliness in the experiment, for it has been ascertained in some cases that those varieties which mature the earliest are not the hardest. However this may be, it is indisputable that the soil in Manitoba is admirably adapted to the growing of wheat, but that there are certain problems the solution of which are all-important before the fullest success can be realized.

The frosts to which I have referred, occurred somewhat earlier during the last three years than was their occurrence in previous years. Though it is not in the power of human ingenuity to prevent these frosts, yet it is within the reach of the grain raiser to evade them, so long as they occur in the early part of September. Two of the solutions I have already alluded to; others, no doubt, will be suggested from time to time, as the experiments proceed. In spite of these drawbacks, wheat raising in the Province of Manitoba and the Canadian North-west promises to assume vast proportions. The progress that it has made in a few years, as I have shown by the figures furnished in this article, is a mere step, compared with the rapid strides which grain raising must make during the next few years in the Canadian North-west.

Southern Corn Culture.

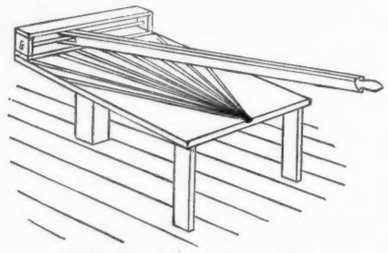
MARK W. JOHNSON, GA.

The large, late corn, such as is usually planted throughout the Southern States for the main crop, should be given a greater distance between the plants than the early and sugar varieties. Corn needs a rich soil. Do not plant it unless you have either a rich soil or plenty of manure. Commercial fertilizers act finely on corn crops. The richer the land, the more the corn can be crowded; but the most approved plan for planting large, late varieties, is to lay off the furrows six feet apart and four inches deep, then drop the seed eight to ten inches, covering two or three inches deep, so as to leave the corn plant a little below the surface when it comes up. Thin out the corn sixteen to twenty inches apart; after the first working, cultivate shallow and level. Corn will very well bear crowding in the furrow, provided it is given sufficient distance between the rows. Leave the land level when laid by. Plant a row of beans between the rows of corn in June. Another plan is, to check the land off three and one-half to four feet each way, according to the strength of the soil. Drop three or four kernels in each check and cover two or three inches deep. At the first plowing thin out to one stalk in a hill. When planted in this manner, plowing may be done both ways, thereby avoiding hoeing. The yield, however, will not be so heavy as when planted according to the method given above.

The early varieties will stand thicker planting. Begin planting, say March 1st, and this may be followed by other plantings made at intervals of two or three weeks until July 1st. Lay off rows five feet apart, drop the grains every five to ten inches in the row; when up, thin to ten to twenty inches apart, or plant in checks, about three and one-half feet each way, dropping a sufficient number of kernels to secure a stand, say three to four in each check or hill. Thin to one stalk in a hill at the first working, unless the soil is very rich, in which case two may be left in a hill.

A Home-made Butter-Worker.

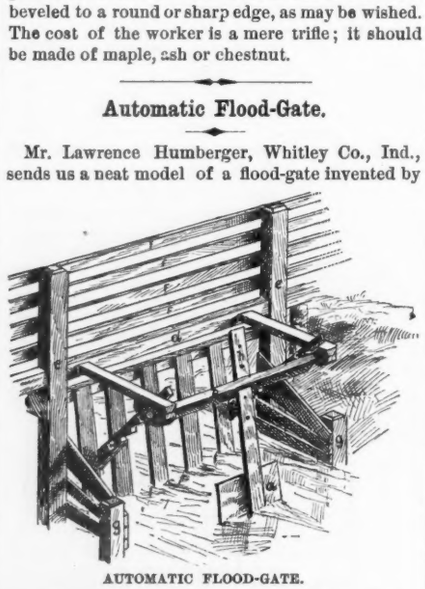
A successful butter maker sends a drawing from which the accompanying engraving was made, of a butter worker made by himself, which he finds satisfactory. It is made to stand upon a table or low bench, or when of large size, upon the floor. The lever works upon a rod and can be moved sidewise, an arrangement which we have seen in no other butter-worker, but which is a very desirable one. The table slopes forward, and has several grooves to carry the liquid down to a pail or a dish placed to receive it. The lever at the underside is beveled to a round or sharp edge, as may be wished. The cost of the worker is a mere trifle; it should be made of maple, ash or chestnut.



A SERVICEABLE BUTTER-WORKER.

Automatic Flood-Gate.

Mr. Lawrence Humberger, Whitley Co., Ind., sends us a neat model of a flood-gate invented by him, and which appears to be well adapted for its purpose. It is designed to prevent small stock from passing from one field to another through a water-course under a fence when there is low water, while in time of high water the gate will rise sufficiently to allow the floating trash to pass through, but not higher, as the gate is self-fastening. The invention consists of a gate constructed of perpendicular slats hinged above, and moving. This hangs across a stream or ditch. On the down-stream side of the gate a swinging paddle is fixed, which hangs in the water. This, marked *a* in the illustration, is attached to an angular bar, *b*, which is moved when the flow of water presses with force against the paddle. Two notched pieces, *cc*, attached to the gate, rest upon the angular bar, *b*, at low water; when both the paddle and the gate hang at rest, perpendicularly, these notched pieces, *cc*, hold the gate firmly shut; when, however, the water rises and the paddle is moved sufficiently to disengage the notches, the gate will be moved by the force of the water, and if sticks or rubbish of any kind float down against it they will be swept under it by the water. When the water subsides the paddle swings back, the pieces, *cc*, catch and keep the gate closed at any height it may fall to. Let the cross-piece, *d*, that is halved into the posts be about one foot above the banks of the ditch. The pieces, *ffff*, represent the fence above the ditch, the small posts, *gg*, with the pieces nailed to them are to prevent the stock from passing when the gate is partly closed, at the same time bracing the posts, *ee*; the holes at *h* are to raise and lower the paddle *a*; if small, a cleat on one of the arms upon which the piece *B* is hung prevents the paddle from swinging towards the gate.



AUTOMATIC FLOOD-GATE.

Do Varieties Run Out?—The Wilson Strawberry.

THEODORE GOODRICH, ILL.

By the popular phrase "running out," as applied to fruits, is commonly meant loss of vitality, quality, or fruitfulness. That some varieties have lost one or more of these qualities when grown in some localities by some men, seems very clear. That the same varieties, when grown in other localities by other men, are as perfect in fruit and foliage as ever, is equally clear. It would seem, then, that the question of deterioration is largely one of soil or treatment. It is quite natural for a fruit-grower to plant in better soil and take better care of strawberry plants that cost him thirty-six dollars, than if they cost him but two dollars and a half a thousand. It is just as natural for him to become less and less careful of the new varieties as they become more common. If careful selection and cultivation improve, it must also be true that neglect will deteriorate. The plants in a strawberry patch if allowed to do so will become matted together, each runner producing from two to five plants. The farther they are from the parent plant, the weaker will the new plants become. These end plants are smaller, less vigorous than the larger, and if planted a deterioration must be the result. In a propagation bed the runners should be cut off after the second plant has formed. This will place a great check upon deterioration.

Twenty-five years ago, when Southern Illinois was coming into prominence as a fruit-growing region, our newly cleared lands were full of leaf-mold, in which the Wilson's Albany luxuriated. Since then the pitiless rains have robbed our hillsides of their marvellous fertility; they are no longer black, but yellow and sterile. Instead of the large crops of beautiful fruit grown on perfect rows of thrifty Wilson plants, we have now great difficulty in getting a stand. Consequently many of our cultivators say "the Wilson has run out." Its place has been taken largely by other more vigorous, deeper-rooted varieties, like the Crescent. A kind that can adapt itself to a poorer soil. Occasionally a farmer clearing up a piece of woods, plants it to the Wilson, when it almost invariably conducts itself in the old way and bears the old-time crop, affording a strong proof that it is our soil and not the variety that is at fault. The variety is worth saving, for of all those shipped to the Chicago market, none are credited with so many good qualities as the old stand-by, Wilson, which has held its own against all new-comers.

Fences for Land Subject to Overflow.

J. C. EARLY, VA.

The fence illustrated in figures 1, 2 and 3, has posts the usual distance apart, which are hewed on the front side and on this are nailed three blocks, three by four inches thick and six inches long; the first one, with its top just level with the ground, the second one, ten inches in the clear above, and the third one, four inches less than you wish the height of your fence, measuring from the top of the first block. After the panel is put in place, the rounded ends resting on the bottom blocks, nail a piece of

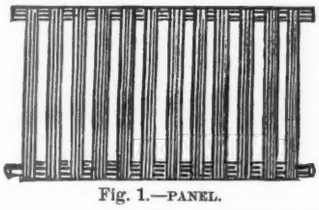


Fig. 1.—PANEL.

board one and one-half by six inches on the blocks as shown in the illustrations. This board must project four inches above the upper block, forming with it the rest and catch for the top framing piece of the panel. The panel is made of a top and a bottom piece of three by four scantling, on which are nailed palings. The top piece is left square, and projects three inches on each side, but on the bottom piece the projections are cut round so as to turn in the slot. The water will raise the panel up out of the upper catch, allowing it to fall down, as seen at Figure 3, so as to offer no obstruction to the water, nor will it catch drift as fences hung from the top do.

Figures 4 to 8 represent a fence made somewhat

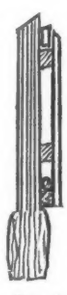


Fig. 2.

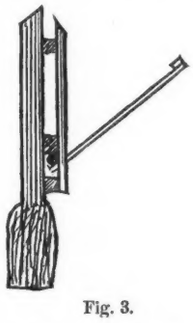


Fig. 3.

like the trestle used for drying clothes. The posts are the usual distance apart, but only extend a few inches out of the ground, just sufficient to nail a hinge upon. They must, however, be wide enough to admit of nailing two hinges on each post. The fence consists of two parts—*E* in figure 4 represents a cross section of the fence proper, two panels of which are seen in figure 7; *D* represents the back part of the fence, a section of which is shown in figure 8; *a* in figure 4 is the post and *bb* are the hinges. The panel *E* should always slope with

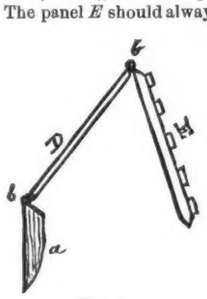


Fig. 4.

the current of the stream, that the water rushing against it will place it in the position shown by figure 5, lying flat on the ground, and out of the way of both water and drift. The hinges may be ordinary strap hinges, which can be bought very cheap by the dozen, or they may be made of heavy hoop iron doubled, as shown at figure 6, which can be made in any blacksmith shop.

This will also make a very good portable fence,

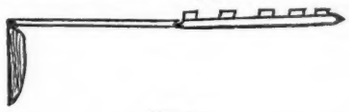


Fig. 5.

by leaving off the posts and substituting pegs to hold the fence in place, and the panels can be made partly of barbed wire by setting posts in the ground and stretching the wires on them; then set the panel-frames, fig. 8, up against the wire and fasten the wires to the uprights; fasten with staples first, and when you cut the wires, turn that outside the staple towards the centre of the panel.

Transplanting Mangold-Wurzel.

There are three methods of growing mangolds. First—Sowing the seed in drills from two to two and one-half feet apart, dropping the seed about one inch apart in the row, and when the plants are well out of the ground, and before they begin to crowd each other, thin out to single plants, from nine to fifteen inches apart in the rows. In this case, we sow from four to six pounds of seed per acre. Second—Rows the same distance apart as before, but instead of drilling in the seed all along the row, it is dropped by hand in holes fifteen inches apart in the row. The holes are made easily and rapidly by a simple tool, consisting of a piece of pine scantling, three by three, with inch holes bored in it, fifteen inches apart. Pegs are driven into the holes, and project downwards about three inches. Sharpen these to a point, so that they can be easily pressed into the ground. A hole is bored in the center and a hoe handle inserted. The holes should not be over two inches deep; if the ground is moist, one inch is better. Three or four seeds are dropped into each hole, and covered at the same time by pressing the soil into the hole. Third—The other method is to raise the plants in beds, as we do cabbage and other plants, and when two or three inches high, transplant them into rows two and one-half feet apart and fifteen inches distant in the row.

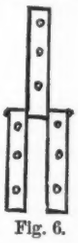


Fig. 6.

In this latter method the great point is, to raise good stocky plants, with an abundance of small, fibrous roots. For this purpose, a light, rich, mucky soil is best. Or, if this cannot be obtained, select a sandy soil and work into it a large quantity of well rotted manure. Sow in rows a foot apart, and drop two or three seeds to each inch of row. By seed, we mean fruit, each one of which contains two or three proper seeds. If the weather is dry at the time of sowing, make the soil firm with a roller, or the back of a spade. If you wish to get ahead of the weeds, soak the seed for forty-eight hours.

Each of these methods has advantages and drawbacks. The first method, drilling in the seed, is the easiest and quickest way of getting in the crop. This is true, even if the seed is sown with the garden drill, and still more so, if it is sown, as we do on our own farm, drilling in three rows at a time with a grain drill, and deposit artificial manure in the drill at the same time. We can sow an acre an hour, seed and manure, all at one operation. We sow on the flat, and follow the drill with a heavy iron roller.

The drawbacks to this plan are: First—The drill, on sandy knolls, is apt to deposit the seed too deep, and on the clayey spots, too shallow. Second—If dry weather sets in, the seed comes up slowly, irregularly, and sometimes not at all. Third—It requires some experience to hoe and thin out the plants expeditiously. Fourth—It is necessary, in order to insure a full stand of plants, to sow ten times as much seed as is needed, say five to eight pounds per acre. In other words, if the weather and soil are favorable, for each plant left to grow you have to thin out from eight to a dozen plants.

The second method, dropping the seed in holes fifteen inches apart in the row, requires, first, less than half the seed. Second, the seed can be soaked for forty-eight hours, or, by changing the water, for three or four days, until some of the seeds commence to sprout. This cannot be done when the seed is drilled in. Third—As soon as the plants appear, you can strike your hoe on each side of the hill, because you know there are no other plants nearer than fifteen inches. You can do this, even if only half the hills show any plants. In this way, you can get the start of the weeds, and far less skill and judgment are required in hoeing and thinning the crop.

The third method, transplanting the crop, has several advantages. First, it saves a large amount of seed. Second, all the plants required for an acre can be grown on a small bed, which you can so manage as to insure an abundance of plants in the driest and most unfavorable season. Third, the preparation of the land for the crop can be delayed two or three weeks. On low, mucky land, which is

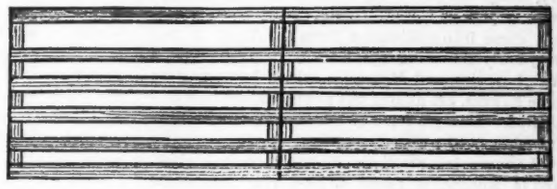


Fig. 7.

not dry enough to work early in the season, this is a great advantage.

The drawbacks are the labor of transplanting. The average farm man is not skillful at this kind of work. He does it reluctantly, slowly, and poorly; and if not properly done, many of the plants in dry weather will die, and you will have to go over the field again.

Mr. J. H. Key, of St. Mary's county, Maryland, writes us that he finds it a slow and tedious job to hoe and thin out the plants, but that owing to the fact that in the section where he lives tobacco is largely grown, he has no trouble in getting men well skilled in growing plants in beds and setting them out rapidly and well in the field. He gets men at one dollar per day who, with one to drop the plants, will transplant from eight to twelve thousand plants per day.

If the rows are two and one-half feet apart, and the plants fifteen inches apart in the row, thirteen thousand nine hundred and thirty-nine plants are required per acre. And in his case, it would seem that transplanting would be the cheaper and better method of growing mangolds.

When transplanting can be so easily and cheaply done, however, and where the winters are comparatively mild, we should be inclined to think that cabbages would be quite as profitable a crop to grow

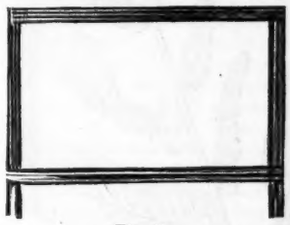


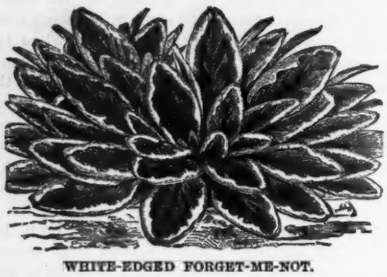
Fig. 8.

for feeding out on the farm, and would have this advantage: If there was a good demand for cabbages, the best heads might be sold and the poorer ones, as well as the outer leaves of the good cabbages, might be retained for feeding the stock.

But whether the cabbages or the mangolds are the more profitable crop, there can be no doubt that, with proper care, mangolds can be transplanted as easily and as safely as cabbages or tobacco.

A New Forget-me-not.

The Forget-me-not, *Myosotis*, of which there are now several species in cultivation, is a general favorite with real flower-lovers—those who do not think that a flower must be showy to be admired. The neatness of the flower cluster, with the grace-



WHITE-EDGED FORGET-ME-NOT.

fully recurved habit, and its peculiarly delicate tints of blue, are most pleasing, and commend the Forget-me-not to all who appreciate quiet beauty in flowers. The original Forget-me-not, from Europe, and now wild in some places in this country, is *Myosotis palustris;* it has bright blue flowers with a yellow throat. Later, *Myosotis dissitiflora* has come into cultivation from the Alps. It is a very early flowering species. *Myosotis alpestris*, a dwarf species, and *M. azorica*, which has very deep blue flowers, are among the popular kinds now cultivated. Lately a form of *M. dissitiflora* has been introduced, in which the radical leaves, as shown in the engraving, are distinctly bordered with white, and in Europe is found to be a very ornamental plant. Very few variegated plants retain their markings in our hot suns. Indeed, the Forget-me-nots are of short duration at any rate, and should be sown in the autumn, to come into bloom in early spring.

White Beans as a Field Crop.

The common saying that no soil is "too poor to grow beans," has conveyed the idea that beans re-

Fig. 1.—FROND OF OSMUNDA REGALIS.

quire a poor soil, and that land that will not grow these, must be utterly impoverished. This is a mistake. With beans, as with other plants, poor soil brings poor crops. Any good, mellow soil, in good heart, will raise a profitable crop of beans. With a crop that has such a short time in which to mature as the bean crop, the mechanical condition of the soil is of the greatest importance, and land that has been plowed the previous fall is preferred. Excellent crops have been raised upon a recently-turned clover-sod plowed under in June, the beans being drilled in after the land has been harrowed. The important point in raising a profitable crop of beans is thorough cultivation. Those who try to raise a crop of weeds and a crop of beans on the same land, find that it does not pay. At harvest time it is difficult to pull the beans from among the weeds. A common method is to mark out the land two feet apart each way and drop four or five beans at each check or hill. Others, on good land, plant closer, making the drills eighteen inches apart, and dropping the seeds singly, every six or eight inches in the drill. The soil being right, and a good stand secured, the crop depends upon thorough cultivation and weeding. It is well known that the working of the beans while the plants are wet with dew or rain, has an unfavorable effect, causing the leaves to rust. The variety to be sown will depend upon the market to be supplied. As a rule the White Marrow is the most profitable crop. This is excellent for the table when shelled green, and near a market a portion of the crop may be profitably disposed of in this state. The average crop is twenty to thirty bushels of shelled beans to the acre, and under favorable conditions, forty bushels have been harvested. In most Northern localities, if sown by the 20th of June, beans will perfect a crop.

Some Desirable Evergreens.

JOSIAH HOOPES, PA.

The mountain regions of Japan furnish us several excellent evergreen trees, which, after years of careful trial in various sections of the United States, may be fairly considered valuable and trustworthy, and which deserve a wider dissemination. One of the best of these was introduced into our collections many years since, under the title of Alcock's Spruce, *Picea* (*or Abies*) *Alcockiana*, but unfortunately for correct nomenclature there have been two entirely distinct species grouped together with one name in common. Dr. Masters has, however, clearly determined the distinctions existing between them, so that the tree most generally distributed in America must hereafter be known as *Picea Ajanensis*. According to the late Dr. Engelman, it is the Asiatic representative of our Menzies' Spruce, *Picea Menziesii*. It is an elegant evergreen with bright silvery foliage and pale, yellowish-brown shoots. The form is strictly pyramidal, broad at the base, with usually a strong leading upright shoot. Neither an excessive cold or heat has thus far impaired its usefulness in the United States, and we may look forward with pleasure to the period when it shall be more fully employed for decoration.

Another Japanese species, which may be designated as the Polished Spruce, *Picea polita*, is beyond question a valuable addition to our list of available conifers. It forms an upright, irregularly conical specimen, very picturesque in appearance, and thoroughly adapted to the vicissitudes of our variable climate. The Japanese name of "Tiger's-tail Fir" is only applicable to the older trees when the leaves become more closely appressed to the branchlets.

The Flowering or Royal Ferns.

As all ferns belong to the class of flowerless plants, it seems to be a misnomer to speak of any

Fig. 2.—OSMUNDA CLAYTONIANA.

as "flowering." This popular name has been applied to the species of *Osmunda*, in which their reproductive portions, the spore-cases, are especially conspicuous. The name *Osmunda*, is said to be a Saxon name for the Celtic divinity, Thor. These ferns, of which we have three species, are exceedingly common in low grounds, and are easily transplanted if one would cultivate them. Whatever difficulties may attend the cultivation of the more delicate ferns, the Osmundas will succeed if placed in ordinary garden soil. The engravings herewith

Fig. 3.—OSMUNDA CINNAMOMEA.

will allow the three species to be recognized. Figure 1 gives a portion of the fertile frond of *Osmunda regalis*, figure 2 shows *Osmunda Claytoniana*, while figure 3 gives a frond of *O. cinnamomea*.

Schinseng, or Ginseng.

The medicines in use by the Chinese possess, according to the accounts they give of them, remarkable powers. A root of a plant of the Ivy Family, "Schinseng," is especially noted for its power in removing fatigue, its ability to restore exhausted animal powers, and to make old people young, "if anything on earth can do so." The name "Schinseng" is said to mean "The wonder of the world"—a well deserved name, if it will do one-half of what is claimed for it. The true "Schinseng" became very scarce, and its root was long ago, in Pekin, worth its weight in gold. An American species of Ginseng, *Aralia quinquefolia*, is so like the Chinese that botanists find it difficult to distinguish them, and the Chinese experts are unable to tell the Yankee from the Oriental root. As a consequence, the American Ginseng has been sent to China from this country, to the great profit of the shippers. The Ginsengs do not appear to be abundant anywhere, and the export of our native root has well nigh exhausted the natural supply, and has suggested the possibility of cultivating the plant, and we have already had several inquiries upon the subject. Our native Ginseng, *Aralia quinquefolia*, is found, but nowhere very abundantly, from Canada along the mountains as far south as Georgia. The engraving shows the five leaflets which give to the plant its specific name. The stalk in the center bears a number of yellowish-green flowers, which are succeeded by a cluster of bright-crimson berry-like fruits. The root is shown of about half the actual size; it is usually simple, but when forked as here shown the Chinese think that on account of its remote resemblance to the human figure such roots have special virtues. The root has a sweetish, rather pleasant taste, but does not appear to possess any medicinal properties. The root sells from a dollar to over two dollars per pound, according as its appearance suits the Chinese purchaser. **Plants which are at home in the moist, shady woods, are among the most difficult to bring into cultivation, yet it is possible that patient trial, with heavy mulching of the surface of the ground, and proper shading,** might succeed, even with the Ginseng.

GINSENG PLANT AND ROOT.

Making Rock-Work.

Our correspondent, "E. E. R.," of Wisconsin, has some very sensible notions concerning rock-work, of which we give the following: "If you study nature's plan of making a rockery, you can make anything grow there that ought to grow there. To begin with, don't form a plan in your head of what your rockery is to look like. You need no plan. The principal need is to get some one to draw some rough scraggy stones for you—the rougher and more lichen-covered the better. Direct that the stones be unloaded in the place where your rockery is to be. The best place for it is in some retired corner, where there is considerable shade. Nothing is more out of place than an eruption of rocks on a well-kept lawn. After the rocks are unloaded don't try to arrange them. Let your rockery be built in just that unconscious fashion, if you want it to be a success. Any attempt to rearrange the stones will spoil it. The effect should be one of careless, natural arrangement, and the dumping down of those stones without any other object in view than that of getting them unloaded, will produce the nearest resemblance to nature's way of doing such things. Procure earth—from the woods if possible—and put over and among the rocks, and with a stick work it in among them. The free use of water will wash the soil into the crevices. When you have all the openings filled, get bits of blackberry roots, wild ferns, and such other plants as you usually find growing among rocks and thrust them into the soil, and wait.

By and by the reward will come. You will have a rockery that hasn't a prim look about it. You will have a rockery that doesn't do violence to your sense of the "eternal fitness of things," by having all manner of foreign plants growing on it. Only wild plants are needed there. You want a tangle of vine and fern, just as you see it in the woods and pastures, with bare rocks jutting out here, there, everywhere, half covered, half concealed. Leave it to take care of itself. The more freedom it has, the more satisfactory it will be. Build one in this way, and contrast it with the elaborate affairs in some fashionable gardens, which suggest the mason and an architect every time you look at them. When you want to imitate nature, do the least you can to accomplish your purpose. That is, provide the most essential materials—bring them together simply, and let her do the rest. She will work for us if we only let her alone, and make no suggestions as to what she shall do. Trust her, and she will not disappoint you. Dictate to her, and she will laugh at you.

Buhach—Insect Powder.

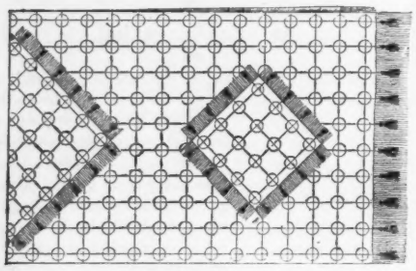
The Persian or Dalmatian Insect Powder, now in such general use for the destruction of insects, was originally offered in small tin cans, as Smith's or Jones' "lightning," or other powder, its real nature being a secret held by a few. At length the material was offered by the pound, and it came into general use as a substance fatal to nearly all insects, the use of which was quite unattended with injury to other living creatures. This powder, whatever name may be given to it, is the ground flowers of *Pyrethrum roseum*, *P. cæruleum*, and other species of *Pyrethrum*, plants closely related to the Ox-eye Daisy, or White-weed, so common in our fields and pastures; they are natives of Asia, where growing the plant and preparing the powder is the sole employment of entire communities. Since the imported powder became cheap, it has often proved unsatisfactory if not quite inert. Recently some parties have undertaken the culture of Pyrethrums in California, finding that both climate and soil are favorable to the best development of the peculiar properties of these plants—a most important matter. To distinguish their product from the imported powder, the growers have adopted "Buhach" as a trade mark. Being grown under the most favorable conditions, prepared, and at once packed in tin cans without undue exposure, Buhach reaches the consumer in the best possible condition. A thorough trial of it last season convinced us that the claims for the superiority of Buhach are well founded.

Railway Gardening.

The American traveling by rail in England, is constantly reminded by the neatness, and often the beauty of the surroundings of the stations, of the room for improvement in that direction there is at home. Upon a few of the railroads running from New York and other cities, the stations are at least neat, and sometimes they are beautified at the expense of those who reside near them, but the ordinary country station, where there is but little traffic, presents a most desolate appearance. Rubbish of all kinds appears to concentrate there; old ties and broken rails; bricks, broken carts, and wheelless barrows and other such matters, give an air to the station that is far from inviting to the stranger. In England, the grounds belonging to the station are neatly turfed, and often with an ornamental fence or a hedge; there are trees if the area is large enough, if not, there are ornamental shrubs; climbers are trained over the building. Beds of showy flowers, and often fine plants in pots or boxes, increase the attractiveness. All this is kept in the most perfect order, without a weed to be seen, and the grounds, whether large or small, show that some one has done the needed thing at the right time, to produce so complete a work. One or two roads in our Eastern States have made a beginning in laying out and planting the grounds around their stations, and it is hoped that others will follow. There is another kind of gardening which railroads, if they do not carry on, at least tolerate, against which all should protest—the growing of weeds. In several States, if a man does not destroy the Canada thistles upon his premises, after being notified, the selectmen of the town can have it done, and charge the expense of doing it in his tax bill. Whether this law has ever been enforced against railways we are not informed, but something should be done to prevent the roads from growing and distributing the seeds of weeds as they now do. There is a strip of land on each side of the roadway, or, if the road runs upon an embankment, there is a still greater surface. These areas of land must be occupied by something, and the something is usually weeds. It would not be difficult to find some grass or other low plant which would grow upon the embankments, and occupy the ground to the exclusion of thistles and other weeds, but the corporations will not be the first to move in this matter, and unless the farmers enter a protest, the weed gardens of the railroads will continue to supply them with the seeds of troublesome weeds, and increase the labor of cultivation. However carefully adjoining fields may be cultivated, they can never be entirely freed from weeds,

A Toilet Set Made of Toweling.

A most durable toilet set is made of blue and white plaid linen toweling; it is also very pretty when made as here illustrated. It requires two



NEAT TOILET SET.

yards of the material for a bureau of ordinary size. A very good quality of linen can be purchased for fifteen cents a yard. First cut a cover to fit your old cushion; then do the same for the two mats, and use what remains for the scarf. A spool and a lead pencil can be used to mark the circles; make one at every point where the blue lines cross; these are worked, in out-line stitch, with blue working cotton. Take care that the line of the circle is not any wider than the woven line. The ends of the scarf are fringed out with little tassels made of the blue cotton fastened in it. The sides of the cover for the cushion and mats are treated in the same manner. A bow of satin ribbon is fastened on one corner of the cushion. The red plaid linen makes a more showy set, but not quite so pretty.

An Ornamented Table.

Any little table can be ornamented, like the one shown in the engraving, with little trouble and expense. The top of the table is covered with peacock-blue plush, which has upon it a bunch of corn-flowers, made of narrow ribbon. The pattern is stamped on, and the petals of the flower made by drawing the ribbon through and in place with a large needle. The leaves are worked with arrasene. There is a new material called "Ribbosene," which is now much used in place of the narrow ribbon above mentioned, but if this can not be obtained the ribbon will answer quite as well. The corner-

ORNAMENTAL TABLE.

pieces of the lambrequin are made of the plush, and the points between are of satin, a shade lighter than the plush; this is ornamented with embroidery and joined to the corner, and all is lined with yellow sateen. Plush balls, the shade of the plush, are sewed at regular intervals on the bottom to finish it. The cover is tacked on the table on the wrong side, and turned down so as not to have any tacks in sight.

A Folding Work-Basket.

Some things are more beautiful than useful, but with this basket the case is reversed. Its use for those who travel, or "live in a trunk" for the summer months, is unspeakable. One can see at a glance the idea conveyed by the ribbon passing around the top, that when it is untied the basket is flattened out and ready for packing. Cretonne makes the most serviceable basket, while silk or satin will, of course, make the most beautiful one. If cretonne is used, half a yard will be needed. Of this, cut two round pieces sixteen inches in diameter. For the bottom, cut one six-sided piece of pasteboard, each side measuring three and a half inches. Further, cut six pieces of pasteboard for the sides, each three and a half inches at the bottom, two and three-quarters at the sides, and five inches across the top after it has been rounded. Baste the six-sided piece between the two rounds of cretonne, and stitch it in place; likewise the six side-pieces, as shown in figure 1; baste the edges of the cretonne together, and bind them with ribbon. Sew pockets of cretonne on alternate sides, and on the intervening ones place a needle-book, a pin-cushion, and a band to slip the scissors

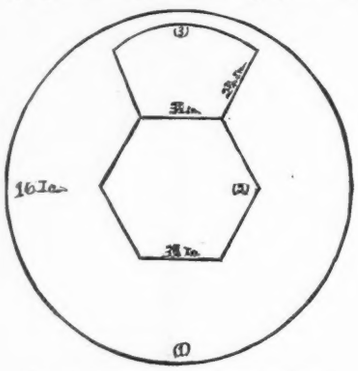


Fig. 1.—PATTERN FOR WORK-BASKET.

through. Fasten an emery and a small bag for buttons on one corner with a bow of ribbons. Small brass rings are to be sewed on the corners of the side pieces, a ribbon run through these, and the basket drawn up when in use, as shown in figure 2.

Some Good Fruit Preserves.

STRAWBERRY JAM.

To one quart of ripe strawberries, take one pound of best white sugar; place the strawberries in a china bowl, cover with the sugar, and let them stand for several hours, that the juice may draw. Then put them on the fire in a preserving kettle, and stir frequently while they cook, until a thick jelly forms. You will find this excellent for mixing with creams, for blanc-mange, ices, puffs, etc., for which purpose it should be mashed, and strained through a fine sieve. A few drops of poke-berry jelly improves the color, making it resemble that of fresh strawberries.

TO PRESERVE STRAWBERRIES.

Preserving strawberries should not be delayed too late in the season, as the first pickings are generally the finest. Select the largest berries before they are too ripe; use the best sugar only, a pound of sugar to each pound of fruit. Let the berries and sugar stand together from evening until morning in a cool place. Then slip the whole gently into a kettle over a slow fire, and as soon as the berries are heated through, lift them off the fire with a perforated ladle and spread them on dishes to cool. Meanwhile let the syrup boil rapidly. In ten minutes return the fruit to it, and let them simmer slowly again, until the berries are clear, when they will be sufficiently done. Put strawberries always into small jars, cover with brandied papers, and seal tightly. Unless the fruit was in a fermented state when gathered, you will not be apt to have any trouble from its spoiling, if put up as here directed.

TO PRESERVE GOOSEBERRIES.

Select young gooseberries while they are still

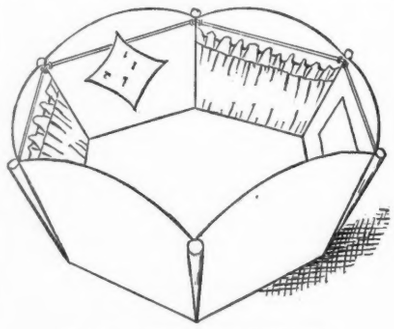


Fig. 2.—WORK-BASKET COMPLETE.

green. Make a syrup with one pound of sugar to each pound of fruit, adding, in the beginning, a half pint of clear spring water. Stew the berries until they are quite clear and the syrup becomes thick. Do not let the gooseberries get mashed, nor have the pan covered while they are cooking, if you would preserve their fresh, green color. Put away in small, self-sealing glass jars, and no fruit will keep better, or make a more desirable preserve.

A Horse-Shoe Picture Frame.

A young gentleman of artistic tastes having made this frame, we have secured the design for our readers, not only because it is exceedingly pretty, but the idea can be easily carried out at home. The frame here represented measures fourteen by sixteen inches, but the size may depend upon the picture to be framed. A neatly-shaped horse-shoe is sawed out of a board, and covered with bronze-colored plush (which can now be purchased as low as eighty cents a yard). A piece of pasteboard is cut an inch larger than the opening in the shoe, and covered with dark-brown plush. This piece is tacked on the back of the frame. The nail-holes in the shoe are imitated with bits of the dark velvet glued on. The back is covered with muslin, and screw-eyes are placed in it, through which to run a cord to suspend it by. A bright picture is glued in the center, leaving a back-ground of velvet, with some

A PRETTY PICTURE FRAME.

natural grasses and a butterfly fastened behind this; a little glue on each stem will keep them in place, thus making the arrangement complete.

Knitting and Crochet.

KNITTED SHIRT FOR A BABE.

The materials required for knitting a shirt for a very young babe are two skeins of thread, cream white Star Light Saxony yarn, two very fine bone needles or the coarsest of steel.

Back.—Cast on 84 stitches and knit 1st row plain; 2d row, all seamed; 3d row, plain knitting; 4th row, slip 1, make 1, [4 plain, slip 1, narrow, pull slipped stitch over narrowed one, 4 plain, make 1, 1 plain, make 1]; repeat what stands between brackets over and over to the end of the needle, where you will come out one stitch short; 5th and 7th rows, all seamed; 6th and 8th rows, like 4th row; 9th row, all plain knitting. These nine rows make one cluster of seven shell points. Begin again at 1st row, and repeat until you have five clusters or forty-five rows. 46th row, all plain knitting; 47th row, with back of shells toward you, knit [7 plain, seam 3]; repeat between brackets over and over till last four stitches, which are knitted plain. 48th row, seam 4, [3 plain, seam 7]; repeat between brackets over and over all across. 49th row, like 47th row; 50th row, all plain knitting; 51st row, 2 plain, [seam 3, 7 plain]; repeat between brackets to end of row; 52d row, 2 plain, [seam 7, 3 plain]; repeat between brackets all across; 53d row, like 51st row; 54th row, all plain knitting. This makes two clusters of basket pattern. Repeat from 47th row till you have twenty-two rows of basket work.

Front.—Knit like back, using the third needle, and leaving it open in the middle, six or seven rows of basket work from the top. Now take finer needles for the sleeves. Cast on forty-eight stitches and knit two rows of shells. Then with the larger needles knit the basket pattern as in body until the sleeves are the required length, widening at the end of each needle when near the shoulder to form a gusset under the arm. Sew the shoulders together half way across at each end. Sew in sleeves. Join sleeves and the sides of the shirt. Crochet row of eyelets round neck, finished with a narrow edge and continue edge down front.

For a child six months old add twelve more shells to each half and knit longer, of three-thread Saxony.

INFANT'S KNITTED BOOT.

Materials:—One skein blue, one skein cream-white Lady Grey wool of the Star Light brand. This wool is the size of single worsted, but it has a much nicer finish. Four steel needles, No. 16.

With the colored wool cast on twenty-eight stitches and knit one plain row. 2d row, 2 plain, pick up a stitch and knit it, 24 plain, pick up 1, knit 2 plain; 3d row, all plain knitting; 4th row, 2 plain, pick up 1, 26 plain, pick up 1, 2 plain; 5th row, all plain knitting; 6th row, 2 plain, pick up 1, 28 plain, pick up 1, 2 plain; 7th row, all plain knitting; 8th row, 2 plain, pick up 1, 30 plain, pick up 1, 2 plain; 9th row, all plain knitting; 10th row, 2 plain, pick up 1, 34 plain; 11th row, all plain knitting; 12th row, 2 plain, pick up 1, 35 plain; 13th row, all plain knitting; 14th row, 2 plain, pick up 1, 36 plain; 15th row, all plain knitting; 16th row, 2 plain, pick up 1, 37 plain. There will now be 40 stitches on the needle. Knit 5 plain rows. 22d row, 15 plain; then, keeping the other stitches still on the needle, knit these 15 stitches backwards and forwards for 25 more rows. 48th row, knit 15 plain, cast on same needle 25 stitches. Knit 5 plain rows. 54th row, 2 plain, narrow, 36 plain; 55th row, all plain knitting; 56th row, 2 plain, narrow, 35 plain; 57th row, all plain knitting; 58th row, 2 plain, narrow, 34 plain; 59th row, all plain knitting; 60th row, 2 plain, narrow, 33 plain; 61st row, all plain knitting; 62d row, 2 plain, narrow, 28 plain, narrow, 2 plain; 63d row, all plain knitting; 64th row, 2 plain, narrow, 26 plain, narrow, 2 plain; 65th row, all plain knitting; 66th row, 2 plain, narrow, 24 plain, narrow, 2 plain; 67th row, all plain knitting; 68th row, 2 plain, narrow, 22 plain, narrow, 2 plain; 69th row, all plain knitting. Bind off. Then, with the same needle on which you still have twenty-five stitches, pick up thirteen stitches across the instep, and twenty-five stitches along the other side, knitting each stitch as you pick it up, knit one plain row and bind off all. This completes foot.

For the leg use white wool, now. Pick up fifteen stitches across the instep (in all the picking up now take the back threads only). 1st row, all seamed; 2d row, 2 plain, make 1, 4 plain, slip 1, narrow, pass slip stitch over, 4 plain, make 1, 2 plain; 3d row, all seamed; repeat 2d and 3d rows three times more; 10th row, 2 plain, make 1, 4 plain, slip 1, narrow, pass slip stitch over, 4 plain, make 1, 2 plain, pick up 18 stitches along the side—that is, missing the first 6 stitches and picking up thence to the end; 11th row, seam 33, and then pick up 18 stitches along the other side, seaming each stitch as you pick it up; 12th row, 2 plain, make 1, narrow, 2 plain, make 1, 4 plain, slip 1, narrow, pass slip stitch over, 4 plain, make 1, 3 plain, make 1, 4 plain, slip 1, narrow, pass slip stitch over, 4 plain, make 1, 3 plain, make 1, 4 plain, slip 1, narrow, pass slip stitch over, 4 plain, make 1, 2 plain, narrow, make 1, 2 plain; 13th row, all seamed; repeat 12th and 13th rows 16 times, or more if you want the leg long. Then knit 7 plain rows and bind off. Sew boot up. Run ribbon, shade of color used, round ankle and tie with bow in front. If preferred, Star Light Scotch yarn, which comes in all shades, may be used.

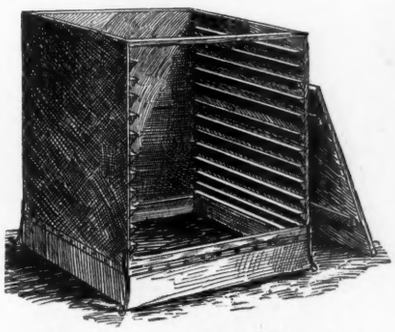


Fig. 1.—A CONVENIENT FRUIT DRIER.

Home-Made Fruit Drier.

D. P. ANDREWS, KNOX CO., ME.

I send herewith a description of my fruit drier, which I find very useful: Take three sides of a rectangular box, of the size of a cook-stove—say eighteen by twenty inches—the top, bottom and one side being removed. It is open at top and bottom when in use, and is three feet high, standing on iron legs six inches high, with six inches of zinc resting on the stove, and united to the bottom edge of the box. Twelve drawers fit in the open side, one inch and a half deep, the bottoms being galvanized wire netting, such as is used for window screens. A door for the fourth side of the box is fastened by four hooks, the space under the door being open for draught. I pare, core and slice one bushel of apples an hour; the slices are carefully laid on the wire, and the door shut. A gentle fire soon evaporates them so as to retain their form and flavor. Berries were dried on a cloth placed in a drawer to prevent their falling through the meshes. This mode of evaporating fruit is much cleaner than the old way of drying in the sun, especially in fly-time, and may be carried on irrespective of the state of the weather.

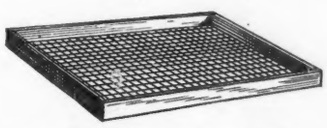


Fig. 2.—DRAWER FOR FRUIT DRIER.

A SIMPLE OMELETTE.—To the yolks of four eggs add half pint milk, one tablespoonful flour, with pepper and salt to taste. Whisk the whites until perfectly dry, and then stir them with the former, adding a teaspoonful of butter. Bake in a hot spider. After the omelette has browned underneath set it inside the stove a few minutes to rise.

Summer Fashions for Wash Dresses.

The fabrics for cotton dresses or "print gowns," as the English tailors call them, are this year particularly soft in finish and attractive in design. Many of the sateens, seersuckers and ginghams so closely resemble silk and wool, that their real origin is only revealed to the touch. Conspicuous among these are those having frisè effects, shown in stripes, blocks, and bars of rich, quaint colors, such as a light blue or buff ground, with dark-green or brown frisè figures. Crazy cloth is also a new and pretty, though rather flimsy cotton material, that resembles crape. It will probably be extensively used, as it comes in exquisitely delicate shades, and is warranted to wash and still retain its crinkled appearance. It is said, too, to require no ironing. Blue-gray is now the fashionable color in Paris, and appears here in the ever-useful seersuckers and linens, which make such delightful traveling dresses.

The gathered basque and long draperies are the favorite styles for making up wash-goods. For thin, colored mulls, batistes, or any transparent fabric, the basque is made double; that is, lined with the same as the outside. This is done that the waist may be of the same shade as the doubled skirts. Cambrics and ginghams, however, require no lining whatever, the white corset cover worn underneath being sufficient. The fullness is all confined to the front of the basque, and is done by simply adding two or three inches to the width of the fronts when cutting out by any basque pattern, and gathering at the neck the waist line and end of the basque. The fronts and backs are longer than the sides, and the edge is finished with a bias piping fold. High military collars and small tinted pearl buttons to fasten the basque are worn.

For more dressy waists, embroidery—either white or colored—is added in reverse, or else inserted in V-shape down the back and front alike. Round waists gathered to a belt, with a yoke, or else a white muslin guimpe, still hold their own; and with these are worn dog collars of embroidery or velvet.

Handsome sateens and Chambéries are often also made up, the same as wool or silk dresses, with heavy lining and whalebones, but these have to be sent to a professional scourer to be cleaned. The Norfolk jacket is another pretty easy fashion for any material, and differs from last year's in having only one wide double plait at the back, and one in front.

Overskirts are long, with the regulation apron front, hemmed or trimmed with embroidery or lace. The back breadths are straight and gathered to the belt. Three or four wide plaits down the left side are held in place by cross tapes, sewed underneath them, and the front breadths next these are drawn across to the right side and caught up into folds by loops and buttons. Unlike stuff dresses, one or two narrow ruffles finish the lower skirts of cotton gowns.

When two materials, as plain and figured, are used, the combination is somewhat odd. For instance, the basque and foot-plaitings may be of plain blue cambric, and the skirts, waist, collar and cuffs, of that which is figured all over. This is an excellent style for remodelling old dresses, but in buying new, it is better economy to have all of one fabric.

In white muslins, embroidered stripes are the newest mode. These are beautifully made with a Figaro jacket, that has a closely-fitted postillion back, while the fronts are cut away, and display a soft full vest of delicately tinted *Crêpe lisse*, or silk muslin. Sashes are largely shown this season, and appear in some form on cotton dresses and in most decided and exaggerated contrasts. Thus, brilliant scarlet ribbon is now worn on dark-blue sateen, and dull brown on plain pink mulls.

BOYS & GIRLS' COLUMNS

A Costly Bird's-Nest.

AGNES CARR SAGE.

It was a charmingly quaint old garden, and fragrant with those sweet old-fashioned shrubs and flowers so dear to the hearts of our grandmothers. Just the place a sociable domestic bird would like to live in. So at least thought Mr. and Mrs. Grosbeak, a pair of merry, bright-eyed finches, as one morning in spring they sought a sheltered nook, in which to build their cosy nest and set up housekeeping. They were lowly-minded, and preferred a spot near the ground; but no place seemed exactly suitable, until Mrs. Grosbeak suddenly spied a strong willow basket, thrown carelessly down among the lilac bushes, and quite concealed by the leafy branches from the large, white mansion near by. It had been left there the day before by gypsy-like Rita, the little bound-girl from the poor-house, who had lately come to live with Madam Brinscombe, the stately owner of the beautiful garden.

"That is just the location, I am sure," exclaimed the bustling bird-wife, and down she flew and examined every crack and cranny of the woven basket-work, while her jolly husband kicked up his little black heels in glee, and then perched on the handle, making all sorts of fun of his fussy over-anxious little helpmate, for selecting such an outlandish nesting-place. But the tiny woman had her own way, and soon both were flitting briskly about, collecting building material for the new house. Such bunches of twigs, and grass, and feathers as they twisted together! plastering and smoothing, until the nest was as round and compact as a tea-cup. "Now, Red-cap," said Mrs. Grosbeak, "we must have something nice and soft for the inside; something fit for the children of our royal race;" for they belonged to the illustrious Coccothranstinæ family, and were very proud of it. "All right, Yellow-bonnet! I'll see what I can find," and off sped the merry finch, his bright crimson head and white bands glistening gayly in the sunlight. Before long he returned in triumph, bearing a filmy, fleecy fabric, which his wife received joyfully, and deftly wove it into the lining of the cunning little home, saying: "Well, Red-cap, you really have brought something worth while this time," and truly he had, for it was nothing less than a piece of rare old lace, which Madam Brinscombe had carefully washed with her own hands and laid out on the grass to dry. Mean-

"THAT IS JUST THE LOCATION."

Engraved for the American Agriculturist.

while great excitement prevailed at the big house when the lace was missed, and sunset found a small lump of misery huddled up in the wood-shed, sobbing as if its heart would break. This woe-begone object was Rita, who was to be sent back to the poor-house in disgrace, and all for the act of an unconscious bird, who at this moment was pouring out his heart in a sweet evening song in the very top of the blossom crowned apple tree. Madam Brinscombe was indeed deeply incensed at the loss of her precious heirloom, and carried out her threat of sending Rita away; for, as she said to her, "Though I am sorry for you, I cannot keep such a careless, if not wicked girl about me. Last week you lost my pretty basket, and now my valuable lace disappears; you were the only one in the garden, and it could not go without hands."

Ah! Madam, you are not so wise as you think! And there is no detective acute enough to whisper that yonder twittering, innocent-looking songster is the real thief and robber!

Time passed on, and still the lilacs guarded the secret hidden beneath their feathery, purple flowers, which kept watch and ward over the basket-nest; and saw appear there first, three pale, blue-green eggs, and then three blind, helpless, featherless birdlings. Ugly enough they were, too! But the fond parents considered them beauties, and carefully tended the baby things, feeding them on the juiciest and most tender fir buds, until their wings began to sprout and their "eyes began to peep." No human being came near the secluded corner until one afternoon in June, when forlorn little Rita stole down from the poor-house, to take one long, lingering look at the home, where she had spent the happiest month of her life. Slyly she crept through a hole in the fence, and pushed her way through the bushes; when suddenly she came upon the long-lost basket. With a glad cry of surprise she caught it up, and her wonder deepened at the sight of three gaping mouths; and, what was worth all the rest—an end of lace sticking out from the nest.

Five minutes later, Madam Brinscombe was startled by the apparition of a ragged waif, carrying in her hand her certificate of character, concealed in the now weather-beaten basket. The rude proof, however, was conclusive, and glad enough was the good woman to be assured of the child's innocence. The lace was ruined beyond redemption, but she insisted that birds and basket should be returned intact to the distracted parents, who were fluttering about in a frenzy of distress. Rita, too, was taken back to home and confidence, and spent many a halycon hour in the old garden, while the merry finches sang and twittered their roundelays in the fruit trees overhead.

The Polyporus Fungus.

If that large fungus, which grows upon the trunks of trees, projecting from them horizontally, like shelves, has a common name, we have not heard it. Hence we are, in the absence of a common name, obliged to use that given by the botanist, *Polyporus*, which means "many pores." An inspection of the under surface of the fungus, will show that this name, if rather long, is sufficiently descriptive. In January last, a correspondent told of the various ornamental uses of these fungi, and we gave an engraving of a small picture-frame made from—we can hardly say "the wood," but of the substance of these fungi. Their bracket-like form, adapts these fungi to various ornamental uses. Even in their natural state, they possess a great deal of a rough kind of artistic beauty. Mrs. "J. C. J.," Sandusky, Ohio, sends us descriptions and specimens, showing that these fungi may not only furnish frames, but also the picture, or at least the canvas upon which to make it, but the color with which it is drawn. When the under sides of young and growing fungi of this kind are scratched with a sharp steel point, the line thus made soon becomes a rich, dark-brown color, and a picture drawn in this manner upon the under side of the fungus, has all the effect of a Sepia drawing. Our correspondent sends us some fungi thus illustrated, one of which is here reproduced in an engraving. The black and white in which we are obliged to represent it, gives none of the warm rich tone of the original. We are always pleased to see the common things of the country converted into ornaments to make farmers' homes more home-like, and have no doubt that other correspondents will suggest other uses for this polyporus fungus.

Fishing.—A Healthful Pastime.

FITZ JAMES FITCH.

All boys—the exceptions are so few I may say all—love fishing; and many men, even those of two, three and four-score years, are boys in their love of this

ORNAMENTAL FUNGUS.

enticing and healthful pastime. Parents should not scold boys for indulging in it at suitable times and within reasonable limits; and boys should not fish except at those times and within those limits. The times are in vacations and on Saturdays after a week of labor and confinement; and, with farmers' boys, upon rainy or cloudy days, unfitted for work upon the farm. On the Fourth of July, when no one is expected to work, the rod and line with flies or worms in one pocket and a good lunch—not even to be looked at until noon—in the other, will give the average boy more pleasure than he can get from the firing of boys' cannon, toy pistols and Chinese fire-crackers.

The first limitation that I will notice is that prescribed by law, namely, prohibiting the killing or taking of fish except at certain seasons. For instance, trout cannot be lawfully caught in this State except between the first day of May and the first of September. In winter trout are infested with parasites that feed upon the fish; this, and the scarcity of food obtainable at this season, render the fish poor, the flesh soft, and, when cooked, without the flavor it has in spring and summer. On bright days in April trout gather on rifts—in shallow, swift water—and free themselves of the parasites by rubbing against the gravel forming the bed of the stream. It is not until the first of May, or thereabouts, that trout are fit to eat, and not until June that they are in perfect condition.

The season closes with the last day of August because in September and October the fish prepare their spawning beds, deposit and fertilize the eggs or spawn. Thoughtless boys and unscrupulous men follow the trout to these beds, which are always made in shallow water and often in small tributaries of the main stream, and with hook and line, snares, nets and by other methods, catch the largest fish in the stream; for at this season, and while the fish are thus employed, even the lords of the pool are easily caught. By reason of such cruel acts tens of thousands of eggs are destroyed that otherwise would hatch into fish that in two or three years would furnish good sport and food. I trust that boys who read this will see the reasonableness of the law, and not only observe it themselves but see that others do.

The second limitation regards the method of capture. The law does not allow the catching of trout, bass and other game fish otherwise than by hook and line. It is only with these that fishing becomes an art and a source of pleasure. This law is the only defence we have against the neighborhood "hog" with his net and the dynamite fiend.

The third limitation respects the size of the fish. It is unlawful to catch and keep a trout of less than five inches in length. All smaller ones must be carefully taken from the hook, so as to inflict the least possible pain and injury, and placed—not tossed or thrown—back into the stream. It is wasteful to kill the little fingerlings. Think of it, boys. One of you when hungry could and no doubt often do eat twenty, twenty-five or thirty such at a meal. Now if these fish had been carefully put back into the stream nine out of every ten of them would have lived, and if suffered to grow but two years that same boy with the same appetite would require but two or at most three fish for the meal. What would you think of a farmer who would kill his chickens when three or four weeks old? No doubt they would be tender and delicious, and weigh more than many trout that are eaten. There are many things besides catching fish that give pleasure to the fisher; vigorous, healthful exercise in the open air and usually in the midst of beautiful scenery. He should keep his eyes open and see everything worthy of admiration—the water-fall, the landscape, the towering mountain and the pretty, tiny, wild flower at his feet. If he cultivates a love for the beautiful in nature he will be surprised to find how beautiful the world is and how infinite was the wisdom and goodness of its Creator.

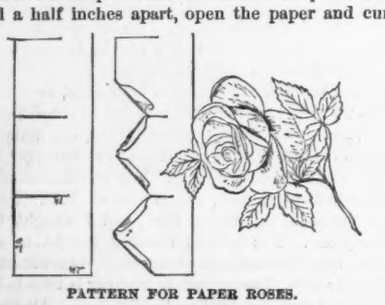
Another and perhaps greater pleasure derivable from angling, is the store of pleasant memories the angler is laying up for future use. What man or boy forgets any one of his fishing bouts? I would urgently recommend the young angler to begin at once keeping an account of all his fishing bouts. Note in a memorandum book or on a sheet of paper, the day of the month and year on which he fished, the names of the stream and his companions, the number of fish saved, and the number thrown back (with a little practice it is easy to keep count of these), and lastly, the weight, if he ascertains it, of the fish saved. He cannot imagine what pleasure this will give him in future years. I can, for I have kept such a record. It lies before me as I write. It begins with July, 1845, and ends with August 31st (the last day of the season), 1885, and gives, among other things, the number of fish caught by me in each bout in each year for forty-one consecutive years. The smallest number taken in any one year, was in that of 1845. I was not much of an angler then, and I caught but ninety-one. The largest number caught in any year—one thousand and eighty-nine—is credited to the year 1863. The aggregate number is twenty-six thousand five hundred and sixty-four. All these were trout; all caught with a hook and line (I never caught a fish in my life, of any kind, in any other way), and mostly with a fly. They were all caught in the lawful season, and not in violation of any law, written or unwritten. Many things should be considered in preparing for trout-fishing, but the first is to see that no statute is violated.

The Fraxinella, or "Gas-Plant."

The last time we visited the late Charles Downing, at his home on the banks of the Hudson, where he had brought together a remarkable collection of hardy herbaceous plants, he pointed out a clump of *Dictamnus Fraxinella*, with the remark: "If I were confined to a single herbaceous perennial plant, it would be the Fraxinella. It is perfectly hardy. The ordinary purplish pink form, while not showy, is stately, and the white variety is really handsome. Moreover, the flowers remain for a long time, while the odor, like that of lemon peel, is to me exceedingly pleasing." "Besides," we added, "it allows you to make an exhibition of fire-works." Finding that Mr. Downing had heard of the inflammable character of the plant, but had never tested it, we struck a match, and applying it near the base of a tall specimen, there was a slight explosion, and a flash of bright flame enveloped the plant for a second, and disappeared, leaving a characteristic odor. It greatly pleased our venerable friend to discover this curious property of his favorite plant. He had heard of it before, but regarded it as something that might occasionally happen, rather than as a phenomenon that may be seen on any warm day. The whole plant is pervaded by a volatile oil, which is produced in the greatest abundance by the glands that beset the flower-stalks. This oil, in a warm, still day, is converted into a vapor so abundant that when a flame is brought in contact with it, there is a slight explosion and a bright flash, which is so sudden that the plant sustains no injury. In looking through a new botanical work just received from France, we came across the engraving here reproduced. We found that it was an expensive arrangement, in plate-glass, etc., for showing the flashing properties of the Fraxinella, an illustration that too much machinery may be used to show a simple thing, and as a consequence the curious phenomenon is not popularized. A warm, still day, and a match, if one has the plants, is all the apparatus required for this curious experiment. The plants, which are perfectly hardy, are sold by nurserymen; they are propagated by dividing the clumps, or from seeds, if these are sown as soon as ripe.

How to Make Paper Roses.

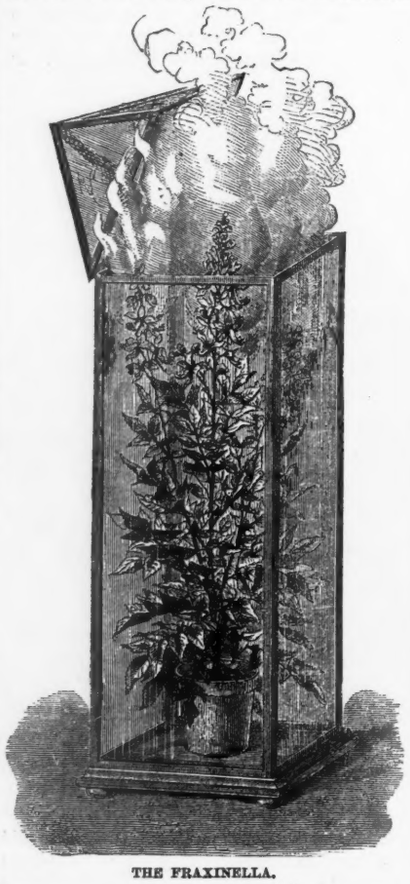
Having lately seen two little girls making pretty paper roses, we asked them to show us how to make them, that we might tell the little readers of the *American Agriculturist* how they could make them, for we know they will be surprised when they see how pretty they are and what they can be used for: First, you want some tissue paper; nothing but very delicate shades should be used to look natural; we will take pink, cream and tea rose shades. It is two cents a sheet; do not attempt to make them unless you can get these delicate shades for they will look just like paper roses if you do, and that is what we want to avoid. Cut the paper folded once, as it comes, in strips two and three-quarter inches wide; begin to measure at the folded part and cut slits in the strip an inch and a half deep and two and a half inches apart, open the paper and curl



PATTERN FOR PAPER ROSES.

the corners over with a dull knife; each strip makes one rose as full blown as looks well. To make a rose-bud cut three of the blocks off. The stems are made of wire; bonnet or picture wire will answer. Cut them in three inch lengths; bend one end over like a hook. When you have several strips curled and the wire prepared, you are ready to form the flowers. It is done thus: Take the strip in your right hand and wind it carefully around the first finger of your left hand; try and keep it even on the bottom. Slip it off from the finger, and tie the hooked piece of wire on it for the stem. The calyx or green cup can be made of green paper, but as the back of the rose is not visible and the roses are to be massed together, it is not necessary. Old leaves taken from artificial flowers will answer for the purpose.

One of the prettiest ways to arrange these roses is to mount them on a panel covered with velveteen.



THE FRAXINELLA.

Pink roses on a dark red surface and tea roses on peacock blue are pretty. Another style in which they may be used is to fill a straw basket to hang in a window, or to set on a table. Arrange them as near as possible like those they imitate; a dozen or more pink ones in the center, with as many tea roses and cream-colored ones on either side of them, look very pleasing.

The Doctor's Talks.

It has been my lot to scatter a good many fortunes. Persons who find a yellow shining mineral, at once conclude it is gold, and imagine themselves rich. They come with a piece of the stuff carefully done up, and show it very cautiously, as if fearing to let their good fortune be publicly known. One hates to tell these persons that their stuff is utterly worthless, as it is sad to see their disappointment when their visions of great wealth are scattered. Mistaking iron (or it may be copper) pyrites, for gold, is a very old delusion, and it is strange that it continues to deceive people now, as it did in the first settlement of the Colonies. Every boy, especially every farmer's boy, should know this mineral, for it is not rare. This pyrites, when laid upon an anvil and struck with a hammer, will fall to pieces and may be easily powdered. Gold, on the other hand, if hammered will be flattened, but can not be broken. Another test is to heat a shovel or a piece of iron red-hot, then sprinkle a small quantity of the pyrites upon it. The well known odor of burning sulphur will at once tell the story. Pyrites is a combination of iron and sulphur, or copper and sulphur; when thrown upon the red-hot iron the heat drives off the sulphur, which takes fire, and in burning forms sulphurous acid, with a suffocating odor.

A MILLION OF DIAMONDS.

Another way in which people often deceive themselves is, in mistaking quartz or rock crystal for diamonds. A subscriber in West Virginia sends us a couple as samples, and wishes to know "how much is paid for diamonds in the rough?" Quartz crystals are very common, and often so clear and bright that it is not strange they are supposed to be valuable. Those accustomed to handle diamonds can distinguish them at a glance by their action upon light. The diamond is the hardest of all known substances, while the quartz crystal may be scratched with a file. The sender of these specimens says: "There are about a million of them." I regret that I am obliged to scatter his fortune, as I have so many others, by telling him that, save as a curiosity, his "diamonds" are worth no more than other stones.

WHY ARE SKINS TANNED?

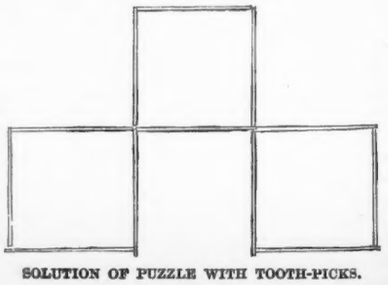
Master E. Hamershmidt, Yamhill Co., Oregon, asks: "Why are skins tanned?" A very sensible question. If a fresh skin is laid in a damp and warm place, it will, in time, decay. Skin consists largely of gelatine or glue; there is more or less fat adhering to the lower side, and some kind of hair upon the upper surface. After the skin has been deprived of fat and hair by lime-water and scraping, it is placed in vats of tan-liquor. This is usually made from oak-bark. The active principle in the oak-bark is tannin, or tannic acid, which abounds in gall-nuts and other vegetable substances that have an astringent or puckery taste. If you add a solution of tannic acid to one of glue (gelatine), that will turn cloudy, and in time will deposit a substance which is the tannate of gelatine—or leather. The skins in the tan-liquor absorb it, and the gelatine slowly unites with the tannic acid in the liquor, and the whole skin is changed to leather. It will not now putrify, nor dissolve in hot water, and has become a very different substance. Skins are also preserved without the use of oak-bark, or any other substance containing tannin. Such skins are not properly tanned, but are "tawed." In this operation, alum, salt and other like substances are used to preserve the gelatine of the skin. Still another method of preserving skins is by oil, which is used in some kinds of leather.

TANNING FOR BOYS.

My young Oregon correspondent wishes me to tell him how to tan all kinds of skins. He thinks it would be useful to boys, as they could earn a little money by dressing mink and other skins. All our boys do not live where game is abundant, and we must try to meet the wants of all.

PRESERVING SKINS WITH THE HAIR ON.

The following is used by the hunters and trappers up in the "North woods:" "Take four ounces each of common salt and ground alum, and half an ounce of borax; dissolve in a quart of hot water; when cool enough for the hand to bear it, stir in rye meal enough to make a thick paste. Having cleared the skin from fleshy scrap, fat, etc., spread this paste thickly over the flesh-side, fold it lengthwise, and let it remain in a shady, airy place for two weeks; then remove the paste from the surface, wash and dry. When nearly dry, work and scrape the flesh-side.



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GENTS:—Yours of the 12th inst. received. In July, 1884, we purchased one of the HURD (Champion) heavy wagons, and from that date it has been in constant use in our lumber business. We have given the wagon a severe test, and do not hesitate to say that the principle upon which the forward axle is constructed is a grand success as to strength and durability and in the comfort and ease of the team in handling a heavy load. The construction of the wagon is such as to prevent entirely any severe or violent lateral motion of the tongue while passing over rough pavements or uneven roads, thereby saving the team from that violent lateral whipping motion of the tongue which is unavoidable in other wagons. Our teamsters are unanimous in stating that a team will handle 2,500 feet of lumber with more ease and comfort in the Hurd (Champion) than 2,000 feet on ordinary wagons. There is another excellent feature in the construction of this wagon worthy of notice—we refer to the spiral springs as arranged upon the axles. We have decided to use the Champion in our business, and to this end we gave our order to Messrs. GERE, TRUMAN, PLATT & Co., of Owego, N. Y., on Feb. 1st, for 5 wagons, *and as fast as our ordinary wagons give out shall order the Champion every time.* Yours truly,

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For cut and description of this wagon see third page of cover this number.

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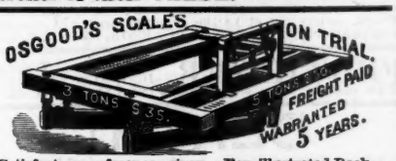

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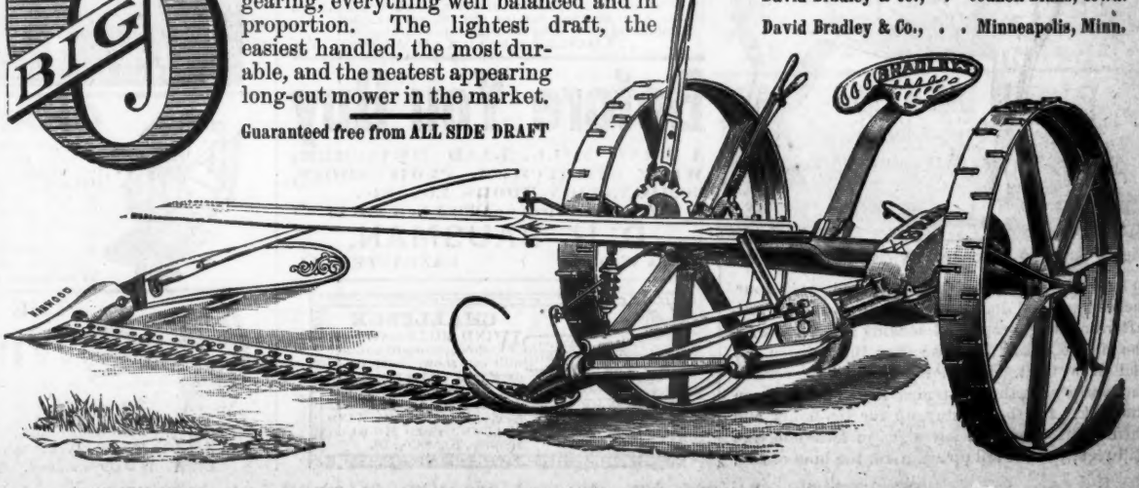

Breaking Horses of Bad Habits.

Prof. Oscar R. Gleason, the most celebrated horse tamer and educator extant, is noted for his expertness in breaking equines of objectionable habits. In a recent communication he describes his mode of procedure in certain cases. For example, he thus tells us how to break a horse that

Fig. 1.—A HORSE AFRAID OF AN UMBRELLA.

is afraid of an umbrella or buffalo robe: Place on the horse such a bridle of straps as is represented in the engraving (fig. 1). Present the umbrella or buffalo robe, allowing him to smell of it; then rub it across his nose and head. Next, open it gently, and at the same time permit him to smell of it several times. Work gently in this manner until the animal becomes reconciled to it, and after a few lessons or repetitions you will be able to use the umbrella in any place around him.

To break a horse of the disagreeable and sometimes very annoying habit of switching his tail, Prof. Gleason informs us that this course should be pursued: Place on the horse a collar and harness, and then turn over the tail on the back, as shown

Fig. 2.—CURING A HORSE OF SWITCHING HIS TAIL.

in figure 2. Lay across the tail a wooden pin four inches long, and double the hair of the tail over it. After doubling a rope and making a slip-noose in the middle, pass the noose over the wooden pin and draw tight. Fasten the ends of the cord to the hames ring, thus fastening the tail snugly on the back. Let the tail stay up for ten hours, and then let it down. If any signs of switching are still seen, put the tail up again for ten hours more.

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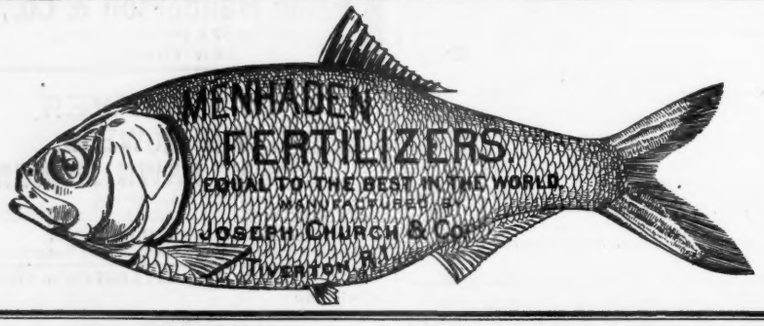

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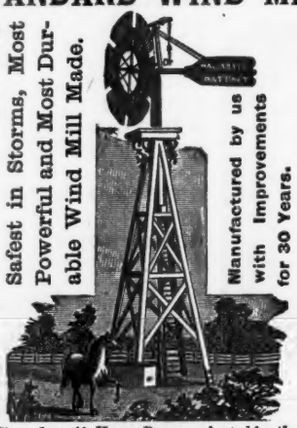

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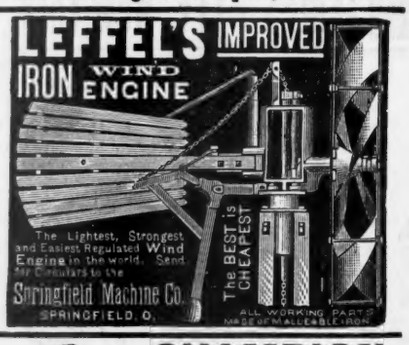
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SEE PAGES 264, 265, 267, 268 and 269 FOR MATTER OF INTEREST.

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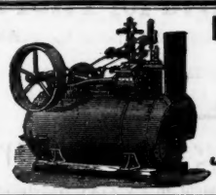

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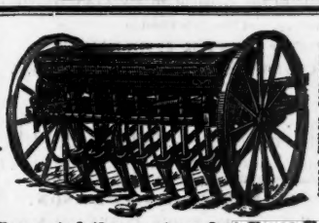

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From New York State Fair Report, published in Albany Weekly Journal, Sept. 17, 1886.

A NOTABLE EXHIBIT.

The J. A. Cross hay carrier manufactured at Fultonville, Montgomery County, on exhibit at the State fair received as first premium a bronze medal, the only medal ever awarded by the State fair for haying tools. For four years these goods have been exhibited at the State fair, competing with nearly every carrier in the market and in each instance receiving the first premium.
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Walks and Talks on the Farm.

New Series.—No. 21.

JOSEPH HARRIS.

For two weeks or more we have had summer weather. Strawberries were in blossom April 22d. Onions for sets are up so that we can see to hoe them. We had asparagus April 20th, and plenty of it. The fruit buds on the Northern Spy apple trees are sufficiently developed to show that we have the prospect of a full crop; but we are trembling with apprehension of a frost or snow. It is certainly a remarkably early season, and farmers are pushing the plowing. It is almost impossible not to be hopeful when everything is bathed in such glorious sunshine and all nature is lovely.

On the morning of April 24th we had a change, and fires are again comfortable. It rains too hard to work out of doors, and I am now seated at my desk with a blank sheet of paper before me and a basketful of letters from correspondents who have paid me the compliment to think I can give them some advice through the *American Agriculturist*. I will do the best I can, feeling at the same time that my answers must be so brief that my correspondents will be disappointed. There are many questions I cannot answer.

I cannot tell why plaster is sometimes so beneficial on clover and corn. I cannot tell why pear trees blight or peaches have the yellows. I know of no absolute remedy for club-foot in cabbages, or for the green worm that eats the leaves, or the grubs that devour the roots, or for what one of my correspondents in Nebraska calls the "Jumping Jack," that eats the young plants of cabbage, turnips, etc. We know the little scamp well, though I do not recollect hearing him called by that name. I sow several acres of cabbage plants, and last year "Jumping Jack" and the grubs at the roots caused me a loss of many hundreds of dollars. We have tried dusting the plants, when the dew is on, with ashes, lime, white hellebore powder, soot, etc. The real remedy is to sow the seed rather thick in rows on the mellowest, warmest, moistest, richest and best land you have. Four hundred pounds of superphosphate per acre, drilled in with the seed, is almost a specific remedy—or double or treble the quantity, sown broadcast, and work into the soil two or three inches deep before sowing the seed. If the weather is dry, sow the seed immediately after plowing or spading up the moist earth. Then roll the land or bat it down firm with the back of the spade. The same remarks apply to turnips.

SOIL FOR ONIONS, ETC.—A farmer in Kentucky asks me which is the best soil for onions, horseradish and beans, and whether turnips can be grown in the fall after the onions are harvested. If the onions are cured and removed from the land before the first of August, a good crop of strap-leaved turnips could be grown. The best and richest land on the farm will be none too good for onions and horseradish. For both crops I prefer a good, sandy loam, rather than low, mucky land. But good crops can be grown on a great variety of soils. And so with beans. They do well on any land not too mucky for corn or too heavy for wheat—a medium sandy loam being considered best. You need to keep the crop clean—that is the great point.

WHEAT YEAR AFTER YEAR.—A Maryland farmer proposes to grow wheat year after year on the same land without plowing. His plan is to sow 200 pounds of bone meal per acre, sell the straw to the paper mills and expend the money obtained for it in bone meal. After harvest, burn the stubble to kill weeds and get rid of rubbish. Then harrow repeatedly, sow the bone meal and seed, and so continue year after year. He asks my opinion. It might work well for a few years, but the chances are that a regular rotation, including clover, would be more profitable.

Plant raspberries in rows four feet apart and three feet in the rows. Suckers set out during rainy weather in June, will grow and give a crop next season. Set four good plants or suckers in a hill. Cut the suckers back one-half so as to check evaporation from the leaves and insure growth.

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Chat with Readers.

Good for Every Latitude.—One of our subscribers at Willis, Montana, writes: "I find many hints on farming and stock-raising in the *American Agriculturist* just as good and practical for Montana ranchmen as for New England farmers."

A Good Summer Lettuce.—W. T. Woerner, Middlesex Co., N. J., has found the Hanson lettuce a valuable variety for summer use. He writes: "There is no lettuce that equals the Hanson; it never gets bitter or tough, no matter how long it stands, and the leaves are crisp and tender, and the heads large and firm." [In our experience we have not found the heads of Hanson as firm as those of Salamander or Deacon.—EDS.]

Our Forestry.—A Division of Forestry has recently been added to the Department of Agriculture for the purpose of protecting our forests, and encouraging the planting of trees. A schedule for observations of tree life, climatic conditions, periods of vegetation, capacity of species for acclimation, etc., has just been issued. These observations should be noted by a large number of persons throughout our country, and any one interested in forestry should apply to the Department of Agriculture for these blanks.

Pigs to Order.—The catalogue makers of the great and growing West employ artists who know what the ideal of the breeder is, and depict it every time. To be sure, all pigs have about the same form, which is that of a short, plump sausage. A catalogue just received has a picture of what we suppose to be Berkshires running about in an oak orchard. At first sight we were reminded of currant bushes where some rabbits had rested for a while and left their tracks.

Horse Goes with His Tongue Out.—N. M. Craig, Province of Quebec, Can. There is no uglier habit in the horse than traveling with his tongue hanging out. There are several devices of bits that are intended to cure this habit. Often wrapping loose wire about the bar of the bit will attract the horse's attention to his bad habit; so will loose pieces of iron hung to the center of a bit. A horse with a blind eye should always be placed with his blind side to the pole.

Seed Rye.—S. W. Zinn, Barbour Co., W. Va. Rye is rather a difficult grain to preserve for seed. It often happens that even last year's seed will not readily germinate. If allowed to become the least mouldy, or too dry, it will not grow. The best manner of preserving rye for seed is to leave it in the straw until wanted for use; then thresh and sow immediately. If the grain is already threshed out, there should be chaff mixed with it to absorb some of the moisture to prevent the grain from molding.

Carnations Not Blooming.—A. B. Storer, New York. Ordinary living rooms are too warm for carnations. The plants produce better and more flowers in a temperature of about forty-five degrees by night and fifty-five degrees in the daytime, than if kept at a higher degree of heat. They also require a moister atmosphere than that of living rooms; frequent syringing will remedy this defect somewhat, but not entirely. The soil should be kept only moist, and not constantly soaked with water, especially when the plants are not growing vigorously.

The Friesian Herdbook, Pedigree Register for 1885.—The Consul General of the Kingdom of the Netherlands favors the *American Agriculturist* with a copy of this "Register" in English. To be sure, the English is a little confusing, but not misleading—calves are born over there, while they are dropped in this country; the mark which we might call a blaze, is there called a flame, and there is about as much funny English as in a Dutch bulb catalogue. The "Register" is a list of the calves of thoroughbred stock still in breeders' hands at the beginning of the year, and as such, a guide to buyers.

"Include Texas, Also."—The San Marcos "Free Press," Hays County, Texas, reproduces what we said in the May *American Agriculturist* regarding the number of bachelors in the far Western States and Territories, and our offer to aid in sending splendid women of the East to those far regions. It adds: "The *American Agriculturist* should also have included the Southern States; this part of Texas at least could contribute large and desirable quota to the proposed emigration—that is, to the emigration of splendid women to the Western Territories." By all means let us hear from the Texas women on this subject. We propose to do all we can to persuade the splendid women of the Southern States as well as the Eastern and Middle States to go West. Why should they remain while their sturdy brothers push on to the regions of the far West and South-west?

Tobacco Stems.—S. S. Scoville, Michigan. Tobacco stems which used to be neglected are now greedily sought after as manure. They contain a large percentage of potash, and are worth much more than an equal weight of barn manure. The Connecticut Experiment Station estimates the value of a sample of stalks at $10.75 a ton. The potash in this sample existed as carbonate, sulphate and nitrate. The stems, which are the midribs of the leaves, are richer in ash and in nitrates than the stalks, but we cannot now find an analysis of these. The amount of nitre is sufficient sometimes to cause them to "sputter" like a slow match when burning.

Alfalfa Without Cultivation.—F. F. Weston, Weld Co., Colorado, who has raised alfalfa for ten years, writes us: "With us it does well on any soil—on sandy loam best; it will stand thirty degrees below zero, and nothing will kill it except the most persistent cultivation. Sow broadcast, not in drills, else weeds will occupy the vacant places to the injury of the alfalfa; use not less than twenty pounds of seeds per acre; from twenty to forty pounds is the rule here. The more seed is used, the better and finer will be the hay—five or ten pounds of seed per acre would produce nothing but brush."

Preserving Eggs.—D. G. Piper, Indiana Co., Pa. There have been many endeavors to discover some means for keeping eggs fresh, but thus far only partial success has been attained. The most successful plans have been those that included covering the shell with a coating that prevented the fluids of the egg from evaporating, but such processes have all proven too expensive for the open market. The Havana or limed process is the one adopted in commerce. It consists of a pickle made of lime dissolved in water, with a few other ingredients that are the special secret of each firm that preserves eggs for market.

Eddie Payne's Wise Suggestion.—Baldwins, New York, May 4th, 1886. David W. Judd, Esq. Dear Sir:—I am a little boy only nine years old and live in the country. I have a splendid family of Light Brahmas; the head of the family we call 'Marquis,' and he has nine of the handsomest biddies to follow him you ever saw. I have a nice colt, too. And I take all the care of them, and if they get sick or out of sorts, I just go for my *American Agriculturist* and study it, and that helps me every time. I must tell you how I came by my *American Agriculturist*. A gentleman in the City of New York, Mr. C. H. Capen, made me a present of one year's subscription to it, and that makes me think more of it still. I think it would be nice if more gentlemen would make such presents; if they have no little friends in the country, they might give them to city boys; it would teach some of them to know a cow from a mule and a turkey from a peacock; and those engravings that you give your subscribers are splendid. I am going to frame mine and hang them up in my room. Papa takes two other farm journals, but the *American Agriculturist* is ahead of them all. Very truly yours, EDDIE PAYNE."

What is Grouting?—S. M. Watson, Jefferson Co., N. Y. Grouting, in garden usage, refers to covering the roots of plants and trees with a coating of mud to prevent them from becoming dry—and a most useful operation it is. If cabbage, celery, strawberry or other plants are to be sent to a distance, grouting them will be of great benefit. The material is good, stiff, loamy soil, which is to be mixed with water to the consistency of very thick cream. This may be mixed in a pail or tub under the packing shed, or in a hole in the ground near the place where the plants are taken up. The roots of the plants singly, or several together are drawn through the mud or grouting, taking care that every root is covered. Place the roots together as they are grouted, and when the bundle is sufficiently large compress it, and cover the outside of the mass of roots with thick mud; cover this with water-proof (oiled) paper, and put over this a stiff brown paper. When grouted plants are received and the mass of roots is dry and hard, do not attempt to pull them apart, but set the whole in a bucket of water, when they will readily separate, and be in fine condition for planting. If plants are to be out of the ground for only a few hours before they can be set, it will pay to grout them; this applies with especial force to evergreen trees and ornamental shrubs.

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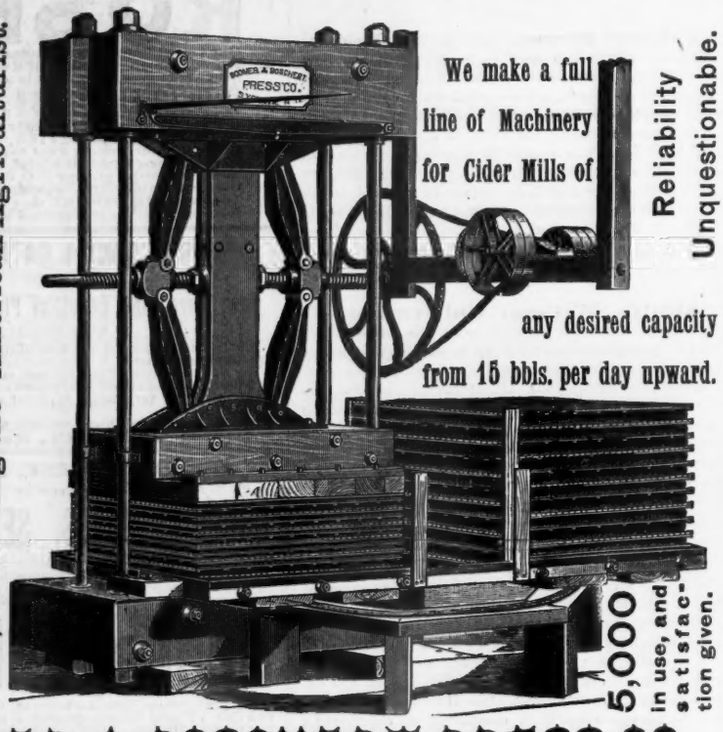

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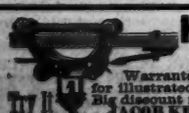

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An increase of nearly two million dollars in income, over three millions in surplus, over seven millions in assets, and of over thirty millions of insurance in force, during 1885.

SUMMARY OF REPORT.

BUSINESS OF 1885.

Received in Premiums	$12,722,103.03
Received in Interest, Rents, etc	3,399,069.71
Total Income	**$16,121,172.74**
Paid Death-claims	$2,999,109.64
" Endowments	741,764.47
" Annuities, Dividends, and for Policies, Purchased	3,940,999.64
Total Paid Policy-holders	**$7,681,873.75**
New Policies Issued	18,566
New Insurance Written	$68,521,452.00

CONDITION JAN. 1, 1886.

Cash Assets	**$66,864,321.32**
*Divisible Surplus, Co's Standard	$7,064,473.13
†Tontine " " "	3,123,742.77
Total Surplus	**$10,188,215.90**
Surplus by the State Standard	**$13,225,053.94**
Policies in Force	86,418
Insurance in Force	259,674,500.00

PROGRESS IN 1885.

Excess of Interest over Death-losses	$ 399,960.07
Increase in Income	1,880,697.35
Increase in Surplus, State Standard	3,313,707.48
Increase in Assets	7,580,567.75
Increase in Insurance Written	7,036,902.00
Increase in Insurance in Force	30,291,914.00

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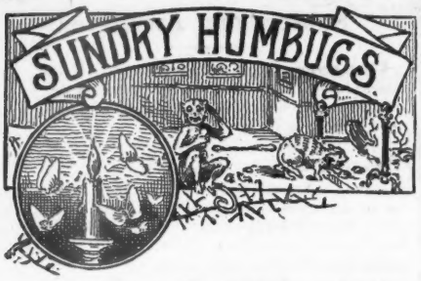

The Borer Cure Nuisance.

Whoever has an orchard is quite sure to be visited, sooner or later, by the chap with the "Sure Cure for Borers." He appears this spring in a locality far separated from the scene of his last spring's exploits. Circulars set forth the destructive character of the borer, and show that somebody's "Borer Exterminator" is the only sure remedy. A piece of the "remedy" is to be placed in the crotch of the tree; the rains slowly dissolve it, and the solution courses down the trunk, "permeates the tissues of the tree and kills the borer." If one is curious to examine the "Exterminator" as it lies in the crotch of the tree, he will admit that it is a fair quality of brown or hard soap. If much of it has dissolved and run down the trunk, the bark at that place will be cleaner than elsewhere. But the borers? These cunning fellows, as if in anticipation of some such trick, all bored their galleries running upwards into the wood of the trunk. Until soap-suds can be made to run up-hill all such applications, by whatever name they are called, are worse than useless, as they delay the use of the only remedy—killing them.

A Vernal Street Fraud.

A small street swindle that appears in New York every spring is the "Florida Alligator Plant." The small twigs of the Sweet Gum, or Bilsted (*Liquidambar styraciflua*), are often supplied with two or more corky wings as wide as the diameter of the twigs themselves, or wider. A twig of this kind, with a developing bud at the end, presents a quaint appearance to those who do not go about the world with their eyes open. Twigs of this kind, about a foot long, with a wad of moss bound on the lower ends, are each spring vended in the streets as the "Alligator Plant from Florida." The thing—according to the vender—is only to be placed in a glass of water, when it will burst into bloom with flowers of the greatest beauty. According to facts it will slowly dwindle away.

Bohemian Oats in Canada.

A correspondent, in sending a report of a trial at the police court, at Chatham, Ont., remarks that "there are evidently some Canadians who would profit by taking the *American Agriculturist*."

The agent of that Ohio Seed Co. which deals in Bohemian oats, had been operating largely in Canada, and had taken notes from a great many people, agreeing to deliver seed oats and seed wheat in return for said notes. The concern operating this seed business claimed to be "The Crawford, Henry and Williams County Seed Co." at Napoleon, Ohio. The Canadian chief of police had telegraphed to the postmaster at Napoleon, O., and received a reply saying "that such a firm used to be there but that he thinks they now make Toledo their headquarters."—"Messrs. D. M. Ferry & Co., Detroit, say that there is no such firm in existence." The trial was brought as a test case, and though it had not been finished when our report was sent—the case having been adjourned for a week—enough had been presented to show the purely speculative, if not fraudulent character of the Bohemian oat concern. That any sensible farmer could have anything to do with a concern that held so uncertain and fluctuating a grain as seed oats at $10 a bushel, is one of the strangest features of the whole scheme. It is the same peculiarity of human nature that induces people to buy lottery tickets.

A Pathetic Letter.

Some of the letters which come to us are touching from their very simplicity, and we can read between the lines a story of suffering, which the writer was too reticent to relate. Such a letter is at hand from Chouteau Co., Montana. A lady, evidently of intelligence and education, had read the pamphlet of one of those so-called medical "companies," which prescribe for the weakness of women. She sent money for medicine, and after long waiting she gets neither medicine nor money. She does not say what an effort it was for her to spare the money, nor how sad it is to have her hopes of a cure all brushed aside, but it is easy to read these between the lines. In such cases it is easy to say—"served her right for sending to a strange quack." Those who know about such cases will blame the quack for holding out to a poor, weak invalid the hope of a cure that he knows can never be effected. If it can be shown that the quack ever received the money, the recovery of that should not be difficult. But what shall compensate for the "hope deferred?"

Plants that are Forced.

Every spring about the markets in cities and villages, June roses, gilliflowers, deutzias, small weigelas, astilbe, spiræas, and very many other plants are exposed for sale which have been forced into bloom long in advance of the season. At the time they are sold they are at their prime—the best they will be this year. Yet hear the old women who sell them—yes, and often the man too—describe the way in which they will bloom out of doors all summer, and again in the house all winter! It is a small cheat, but nevertheless a cheat. The buyer of a plant at once loves it, and it grieves her to see it dwindle away from the day she takes it home. Those who know about plants, never buy them in flower.

A Timely Warning.

Very many gentlemen of means, having estates, farms or small pieces of territory in the country, to which they retire for the summer months, are naturally very desirous of beautifying them as much as possible. Such gentlemen, who have not time to thoroughly analyze the various products that are offered to them, are frequently imposed upon by sharpers who make a livelihood by thus defrauding those not thoroughly versed in rural matters. It was upon this class of people, having homes in the country, that "The Blue Rose Men" flourished for years in this and other cities.

"THE BLUE ROSE MEN."

Several white-aproned and white-capped chaps, with very little English to speak with, took each spring, temporarily, a store in a busy part of Broadway. They had a great lot of old vines and shrubs, but their strength was in their pictures. Blue roses as wonderful for their size as for their color; strawberries which grew on bushes, and cherries which weighed a pound each, and a sort of giant asparagus that could be cut in nineteen days (instead of nineteen months) from seed! These are but a few of the absurdities that these chaps sold, and they went away each spring with well-filled pockets, having swindled men who prided themselves on their business shrewdness.

THE MAN FROM TEXAS.

"Charlie," we think he was called, would appear in the spring in a rig that made it easy to believe he had come from the frontier. He would visit the offices of the wealthiest bankers, etc., and wait until he could have an interview. He would show a few small, round, carefully preserved seeds, and the way he described the beauty of the flowers that bore them, was a wonder of Texan eloquence, only equalled by the description of the dangers encountered in securing the seeds. A dollar each seemed a low price to pay for such seeds, and when the stock ran low, Charlie would go around to Thornburn's and fill up from the okra or gumbo drawer.

Buy No "Great Secrets."

Albeit the "spring styles" of humbugs—such as wonderful seeds, plants, etc.,—are now out of date, there are certain frauds which are hawked about the country at all seasons, and against being imposed upon by any of these it is always in order to warn our readers. The selling of recipes, claimed to be great and valuable secrets, is the *dernier* resort of many a swindler after the failure of other expedients to deceive the unsuspecting. People are frequently induced by palavering, smooth-tongued shysters, to pay round prices for so-called secret processes which have long been published, and many of which have proved useless. The only safe course to pursue is to reject all propositions to purchase anything claimed to be a wonderful secret of great value, for in nine cases out of ten whatever is offered under such a guise proves fraudulent—often far worse than useless. Our advice, therefore, is to give a wide berth to all rambling dealers who claim to be the only possessors of any remarkable process—some great discovery unknown to "all the world and the rest of mankind"—the use of which would be highly advantageous, if not the "open sesame" to speedy wealth. Show all such callers the door or gate, and enjoin upon them, for their personal safety, the necessity of itinerating—moving on until they reach a more favorable locality for practicing their (to you at least) opaque operations.

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Homes of our Farmer Presidents. — Jefferson.

How the First of the Series is Received.

We present below a few of the many responses from subscribers receiving the Engraving of Jefferson's Home on special *heavy plate paper*, of which Engravings we sent to subscribers 1,800 in a single day. Remember, subscribers—and subscribers only—who forward us ten cents, will receive this splendid work of art in a tube specially prepared for the purpose. These Engravings are not for sale, and are presented only to subscribers of the *American Agriculturist*, who send ten cents for packing and postage.

The Engraving of Monticello received, and we are very much pleased with it; thanks for the same. The *American Agriculturist* comes as a dear expected friend every month. It has been a great help to us in farming.
JAMES W. LAWRENCE, Vernon Co., Wis.

It is indeed a fine production. The scenes are so vivid and life-like, as to produce a lasting impression of the farm life of the noble and patriotic "Sage of Monticello." It will raise a thrill of joy in the heart of every farmer boy in this broad land of ours who see it (and we wish and hope every one will see it), stimulating them to a higher regard for the noblest of all pursuits—the cultivation of the soil. Wishing you the best of success, I remain, Yours respectfully,
H. H. SELTZER, Treasury Dep't, Washington, D. C.

Truly an interesting work of art. I esteem it very high for its accurate description of the residence and its surroundings. The historical information in connection with this beautiful Engraving as furnished by the *American Agriculturist* is richly worth five times the subscription price of the paper. To say nothing of the value of the *American Agriculturist* as a farm and agricultural work, which has no rival on the continent. All who fail to receive the *American Agriculturist* for 1886 will lose a rare treat in history and art.
J. H. HAYNES, Monroe Co., W. Va.

The beautiful Engraving of the home of the "Sage of Monticello" just received. I am well pleased with it, and equally well with Mr. Parton's biographical sketch.
H. N. PORTER, M. D., Oneida Co., N. Y.

It is an excellent picture and more than meets my expectations. I shall take pleasure in calling attention to it, as well as your liberal offer.
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Engraving received. The pictures are very interesting. I shall always speak a good word for the *American Agriculturist*. I think I made an investment that will pay one hundred per cent. interest when I subscribed for the *American Agriculturist*.
CHARLES MCCOY, Westchester Co., N. Y.

The Engraving of Jefferson's home received, and am very much pleased with it. The subscribers to the *American Agriculturist* get their money's worth several times over. The *American Agriculturist* itself is doubly worth the price of subscription, and your premiums are every one of them grand. How can you give so much for the money? This is a mistake, indeed.
EDWARD B. JONES, New Haven, Conn.

Permit me to congratulate you on the success of your first Illustration of the "Homes of our Farmer Presidents." A beautiful picture, finely illustrated and worthy of a place on the wall of any house.
BELMONT PERRY, Gloucester Co., N. J.

Engraving of Jefferson's home received. The pictures are splendid, and will be highly prized in my family. I think the Engraving worth more than twice the price of the *American Agriculturist*. Your subscribers certainly will be highly pleased with this extra favor.
PRESTON RAYNOR, Suffolk Co., N. Y.

MR. W. H. CAMPBELL, Wyandotte Co., Kansas, in enclosing ten cents for a copy of Monticello, Jefferson's home, on heavy mounted paper says: We think it is just splendid. The best engraving I have ever seen.

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The Engraving is splendid; shall have it framed and hung in a conspicuous place. I, for one, *cannot* get along *without* the *American Agriculturist*.
JAMES COOPER, Bradford Co., Pa.

Received the Engraving of Jefferson's home, Monticello, the first of the Farmer Presidents, with which I am very much pleased. These homes have a special interest and the idea is good.
FRANKIE J. CALHOUN, Litchfield Co., Conn.

The first Engraving of the series "Homes of our Farmer Presidents" received. The character of this Engraving was a complete surprise. It is certainly valuable. Herewith I enclose you ten cents to mail one in a tube to my address, on heavy plate paper for framing, to prevent same from being injured or mutilated.
W. C. STROHM, Gage Co., Nebraska.

MR. WM. A. WOOD, Caldwell Co., Mo., in enclosing ten cents for a copy of Engraving of Jefferson's home, Monticello, on heavy paper for framing, says: It is a splendid work of art, and you deserve great praise for putting these pictures and the articles upon them before the people, especially the young. It will tend to content the boys with the farm, an inestimable blessing.

The Engraving of Monticello received. It is much better than I expected. If the others are as nice, shall consider that we more than get the *American Agriculturist* free. Hope your paper will get a large circulation for these generous gifts.
W. A. BENEDICT, Delaware Co., N. Y.

The Farm Home of Jefferson.

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Read the Advertisements.

Notwithstanding the business prostration—owing to the strikes and other causes—our advertising for this month exceeds by a page that for the corresponding month of June, last year. Our readers should read all these advertisements. They constitute interesting and valuable matter in themselves. Furthermore, in writing to an advertiser, always state to him that you saw his advertisement in this Periodical.

Special Premiums.

See page 226, May number, for the Microscope offer. The offer for the New American Dictionary, same page, is continued until July 1st, this year.

Contributors to this June Number.

A. B. Allen, Founder of the *American Agriculturist*.	David W. Judd, N. Y.
Dr. George Thurber, N. J.	D. P. Andrews, Vt.
Seth Green, N. Y.	Dr. Peter Collier, D. C.
R. G. Newton, Dakota.	Gen. Geo. W. Wingate, N.Y.
M. C. Weld, N. J.	Geo. B. Elliott, Manitoba.
Henry Stewart, N. C.	Fitz James Fitch, N. Y.
Dr. F. M. Hexamer, N. Y.	D. D. T. Moore, N. Y.
Mark W. Johnson, Ga.	Oscar R. Gleason, Mass.
Joseph Harris, N. Y.	Chas. S. Plumb, N. Y.
Josiah Hoopes, Pa.	Geo. M. Richardson, Minn.
Kizo Tamari, Japan.	Thomas J. Powers, Fla.
John M. Stahl, Ill.	J. T. Allen, Arizona.
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Chester P. Dewey, N. Y.	Arthur L. Valk, N. Y.
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J. R. Folsom, N. Y.	J. C. Early, Va.
T. T. Templin, Ky.	L. Humberger, Ind.
R. E. Rexford, Wis.	Mrs. E. S. Welsh, N. Y.
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Owing to crowded columns, our second paper on the Wagons of the World is postponed this month.

Subscribers Answered.

Bones. — G. A., Montgomery, Texas. If bones are sledged up, they can be dissolved, or at least rendered soft enough to mash, by mixing them with good, strong wood-ashes kept moist.

Ashes. — G. A., Montgomery, Texas. You will find good results to follow throwing a small handful of dry wood-ashes (unleached) upon each hill of corn. Throw smartly so that the ashes will scatter. The rain will wash them down into the soil and the corn will thank you. Leached ashes are useful to the crop also, but much less efficacious.

Bugs on Cucumber and Other Vines.—G. W. Moulton, Cumberland Co., Me., protects his cucumber, melon and squash vines by a method which he says is so effective that since he has used it he has not lost a single hill of vines. His coal-ashes are sifted and kept in barrels. A stick is thrust down in the middle of a barrel of ashes and a large cupful of kerosene is poured into the hole thus made. The ashes are afterwards sifted into another barrel, and the preparation is ready for use. It is to be applied freely to each hill, beginning when the plants are just breaking ground. After a rain the application must be renewed. This mixture may be used freely, as it does not injure the plants like lime and some other remedies.

Manure on New Land.—C. R. Minturn, Greene Co., Iowa. In 1877 Mr. Minturn commenced farming on the rich lands of Iowa, and found his neighbors hauling the stable manure out into the roads and getting rid of it the best they could. He advised them to put it on the land, but they laughed at him and said the land did not need it, being rich enough. He has always found stable manure a great help, even on the newest ground, especially for corn, and most of his neighbors have come to the same conclusion.

Black Ants.—Joseph Chase, Lackawanna Co., Pa. If the building is old and contains rotten logs it is nearly impossible to get rid of black ants, but the only sure remedy is constantly fighting them. When convenient, place plates filled with sweetened water and kerosene oil where they can get at it. Scatter plenty of Buhach powder in their runways and over the floors. Dig up their nests if they can be got at and kill them wherever found. It must be war to extermination.

The *American Agriculturist* is especially enterprising this year, and is now sending to its patrons large engravings of the "Homes of our Presidents," which are worth th price of the paper, alone.—*Cherokee* (Iowa) *Times*.

The *American Agriculturist* is known from Maine to California, and, in fact, wherever there are intelligent farmers speaking the English language. And its widespread fame is well deserved, It is almost invaluable to to the farmer, and next to the LEDGER should be the first paper to be subscribed for if not already on your list.—*The New Albany* (Ind.) *Ledger*.

Besides the usual attractions, the *American Agriculturist* for May is accompanied by an illustrated supplement containing beautiful views of Monticello, the home of Thomas Jefferson.—*Albany* (N. Y.) *Journal*.

Headwork, unless supplemented by educated brain power, works at a heavy disadvantage. The *American Agriculturist* is acknowledged on all sides as a number one farmer's paper.—*Webster* (N. C.) *Herald*.

The *American Agriculturist* is the leading paper of its kind in America, and our farmers and all those engaged in agricultural pursuits should not be without it.—*Logan* (Utah) *Journal*.

The *American Agriculturist* is hailed with delight by all, and from the veriest prattler to the grey-haired sire. —*News and Advertiser* (Milford, Del.), May 12th.

The *American Agriculturist* is a wide-awake monthly. —*National* (Washington, D. C.) *Review*, May 1st.

The May number of the *American Agriculturist* is worth a year's subscription and more. The first picture of the series of "Our Farmer Presidents" gives views of Monticello, the home, life and death of Thomas Jefferson, the best farmer of his time.—*New Albany* (Ind.) *Ledger*.

The *American Agriculturist* is the best agricultural paper in the United States. Every farmer ought to have it.—*Rogersville* (Tenn.) *Review*.

The *American Agriculturist* for May is filled with matters of interest and value for every farmer, gardener and housekeeper.—*Sabbath Recorder* (Alfred Centre, N. Y.)

Business Department.

Agricultural Education at Cornell.—The faculty of Cornell University, at Ithaca, New York, announce an attractive course of instruction for 1886-7. With free tuition and such instructors as Professors Caldwell, Schaeffer and Newberry on agricultural chemistry, Prentiss and Dudley on botany and horticulture, Comstock on insects, Williams on geology, Law on veterinary matters, Roberts on agriculture and Arnold on dairying, the lecture and class rooms should be crowded next fall and winter. Cornell is doing a great work, developing and educating the agricultural tastes of the country.

The Champion Wagon.—We hope to give a full description in the July number of the new farm wagon called "Champion," which is attracting so much attention among farmers.

American Nurserymen's Association.—The annual meeting of this association will be held from June 16th to 18th, in the Department of Agriculture buildings, Washington, D. C. Interesting as all the previous meetings of this excellent association have been, the coming one promises to present even more attractions. The discussions will embrace a wide range of subjects pertaining to the propagation of plants and trees, new labor-saving devices, and pomological and horticultural matters in general. Programs and other information in regard to this meeting may be obtained from the secretary, D. Wilmot Scott, Galena, Illinois.

Best Manure Spreaders.—"H. F.," Westchester Co., N. Y. The Kemp Manure Spreader, Manufactured by Kemp & Burpee, at Syracuse, New York, is unquestionably the best in the world. It discharges a load in two minutes, and has achieved great popularity. On page 94, March *American Agriculturist*, we briefly described this spreader; but write to the manufacturers for further information, if desired.

Montana.—Mr. S. B. Carlus writes us from Beaverhead County, Montana, under date of April 15th: "Montana has been specially favored with a mild winter, except a few very short cold spells. I have never seen a milder or more even winter, even in Southern Kansas. Range stock are in prime condition, with few or no losses reported in this part of the Territory; neither have stockmen found it necessary to feed one-half of the usual amount of hay, and consequently a large amount will be kept over. At this writing, 'bunch grass' is growing rapidly, and many ranchmen have turned their whole herds out for the season. Plowing has begun in earnest, and some planting and sowing is reported."

Cane Growers.—To our subscribers in Louisiana and Kansas. The Victor and Niles Mills and Cook Evaporators for sugar-cane and sorghum, manufactured by the Blymyer Iron Works Company, Cincinnati, Ohio, can be relied upon as represented. In fact, they have for very many years been considered as the standard machinery for sugar-cane.

Two Wheelers, or road carts are now becoming very popular in this country, though for a generation or more they have been the favorites on the other side of the water. The probabilities are that this new vehicle will become universally used in the United States during the next few years. Subscribers who wish to know further regarding the two wheelers, should write to Bradley & Company, Syracuse, New York.

Cider Presses.—We are frequently asked by our subscribers to give them information and advice regarding the purchase of cider presses. We cannot stop to answer the various questions which are propounded to us from subscribers on every variety of topics; so far as cider presses are concerned, we refer them to our advertising columns, where the merits of various cider and other presses are set forth.

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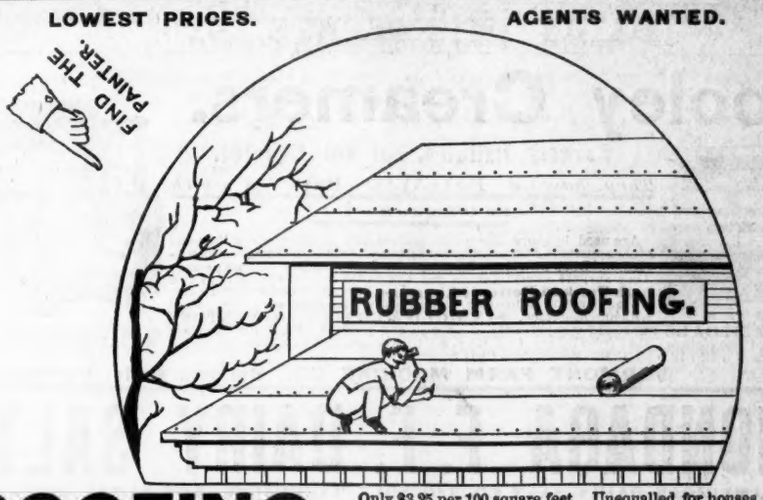

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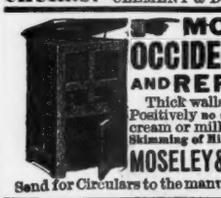

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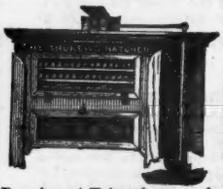

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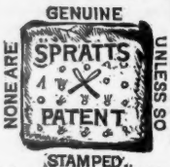

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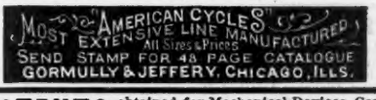
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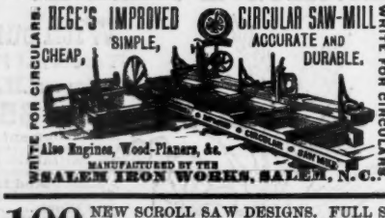

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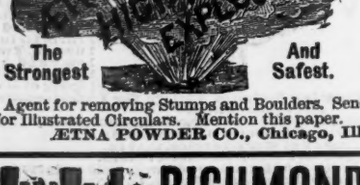

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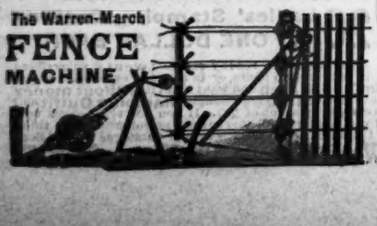

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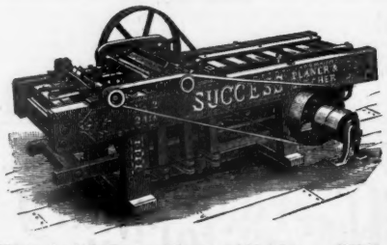

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